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ABSTRACT

To check on the status of online cataloging developments in Association of Research Libraries (ARL) member institutions in 1983, a brief questionnaire was sent to ARL libraries that had indicated or reported some progress toward an online catalog. The sample was not intended to be representative of all ARL libraries, and it did not necessarily involve all members developing online catalogs. Of the 29 ARL libraries surveyed, 20 returned the questionnaire and indicated they had taken some steps toward developing an online catalog. The Systems and Procedures Exchange Center (SPEC) kit on online catalogs in ARL libraries comprises: (1) a chart of the survey results; (2) "Library Operational Requirements: The Online Public Access Catalog, March 1983" (University of Minnesota); (3) "An Overview of the Prototype of the TRLN Bibliographic Information System, March 1983" (Triangle Research Library Network); (4) "The Pennsylvania State University Library Information Access System, February 1983" (Pennsylvania State University); (5) "Integrating Authority Control in an Online Catalog, February 1983" (Ohio State University); (6) "An Online Catalog for Dartmouth College Library: The Experiment Continues" (Dartmouth College); and (7) "The Used and the User: The Online Catalog at Virginia Tech, January 1983" (Virginia Polytechnic Institute). The concise summary that introduces the kit defines an online automated library system for the purposes of this study, breaks the development of an online catalog into four stages, and briefly discusses trends and issues. An evaluation form for this SPEC kit is included. (THC)

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Online Catalogs in ARL Libraries

Kit 96

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ONLINE CATALOGS IN ARL LIBRARIES

After years of speculation and planning, online catalogs are becoming a reality in all types of libraries. Spurred by the ever-increasing costs of maintaining and using large card catalogs, ARL libraries have taken an active role in the development and analysis of these new catalogs. While there is little agreement on the exact definition, for the purposes of this flyer and kit, an online automated library system must provide at least the following two features to be an online catalog: 1) public access and 2) the same access points and the same information as the card catalog. Additional features include authority control, boolean searching, access to circulation and processing data, keyword access, and programs that assist the public in using the catalog.

To check on the current status of developments, a brief questionnaire was sent to ARL libraries that had indicated or reported some progress toward an online catalog. The sample was not intended to be representative of all ARL libraries, and it did not necessarily involve all members developing online catalogs. Of the 29 ARL libraries surveyed, five did not respond and four responded that they had nothing to report. The remaining 20 returned the questionnaire, usually accompanied by some documents. Each of these 20 had taken some steps in developing an online catalog as defined earlier.

For this kit, the development of an online catalog was broken into four stages: 1) Planning, which involves writing specifications and requirements and examining options; 2) Development, which follows the selection of a system and involves either writing programs or adapting an existing system to meet the library's requirements 3) Implementation, when the new or adapted system is brought up as a prototype or test and further work is done to perfect the system for use by the library; and 4) Operation, which can be defined as the stage in which the system is made available for public use without excuses. The dividing lines between these stages are not always clear, but they provide a convenient framework for discussing the state of online catalogs.

Of the 20 libraries responding, four are in the planning stage, four in the development stage, seven in the implementation stage, and five have an operational system. It is interesting to note that the operational systems were all locally developed, as opposed to being turnkey or transplanted systems. Of the seven systems in the implementation phase, three are local systems. It is also interesting that only two of the 16 libraries that are past the planning stage intend to use a turnkey system -- i.e., one where the computer and the programs are installed by an outside vendor. Of these 16, eleven are using local systems, two are replicating the software of the Washington Library Network and one is using the software of Northwestern's NOTIS. The remaining two are using turnkey systems.

TRENDS AND ISSUES. The interaction between the patron and the computer -- specifically whether the interaction should be based on commands or upon a set of menus offering choices -- has been the subject of much discussion. (See SPEC Kit #93 on User Instructions, April 1983). Of the 16 libraries in this study beyond the planning stage, eight use commands only and the others offer a choice between, or mix of, commands and menus. No library reported offering a menu-only system.

The access points available in these online catalogs vary. By our definition, they all provide the same access as the card catalog -- author, title, subject. However, most go beyond this and offer keyword searching in at least some fields as well as access by ISBN, ISSN, and LC Card Number.

The feature that many ARL librarians feel is crucial to the success of online catalogs is the provision of authority control. This control is both a means of validating new headings coming into the catalog and a means of directing patrons to the correct form of a heading with the least pain. Most of the responding libraries plan to have some form of authority control. However, there are two types. In the first, the authority control exists independently of the bibliographic file, much as the book of LC Subject Headings exists independent of the card catalog. In the second, the authority file is linked to the bibliographic file. Essentially, in the first instance, the authority file serves as a reference source for correct forms that the patron checks prior to entering a search, while in the second instance the patron is provided a direct link between a heading in the authority file and the bibliographic records that use that heading. Further, in a linked system, headings for both the bibliographic and authority files are associated so that changes and corrections need only be made once.

Regarding integration of online catalogs, all but a few of the reported systems have an actual or planned connection to other automated systems in the library. This connection may be a link between catalog records and circulation or processing records or it may be full integration in which the same record serves as the processing and bibliographic record. In either case, for the most part these online catalogs are not stand-alone systems. (See SPEC Kit #90, Integrated Library Information Systems, January 1983.)

Progress in the development of online catalogs is being made at an ever-increasing rate. As more systems become operational, experience with them will grow and shape new developments. Already, studies funded by the Council on Library Resources and other agencies are changing perceptions of how people use catalogs and removing some uncertainties. The greatest promise for ARL libraries may be that a significant number of systems are operational or on the verge of becoming operational. A great deal of effort has been poured into designing and developing these systems. An ongoing effort and commitment to study and analyze how these systems are used and how well they serve the needs of patrons over the next few years can help ensure the success and improvement of online catalogs in all types of libraries.

SPEC Kit #93, Online Catalogs in ARL Libraries (July - August 1983, 97 pages), contains survey results and six documents illustrating the development and use of online catalogs. SPEC Kits are available mainly by subscription from: SPEC Center, Office of Management Studies, ARL, 1527 New Hampshire Ave., N.W., Washington, D.C. 20036. Individual kits are available for $15.00 prepaid. Outside the U.S. and Canada, add $5.00 per order to the prepayment for parcel post shipping. (ARL library members receive kits for $7.50).

This Flyer/Kit was prepared as part of the
Collaborative Research/Writing Program
by William Gray Potter, Head of Acquisitions and Circulation,
University of Illinois, Urbana.

The Systems and Procedures Exchange Center (SPEC) is a clearinghouse operated by the Association of Research Libraries, Office of Management Studies that provides a central source of timely information and materials on the management and operations of large academic and research libraries. It facilitates the exchange of knowledge and documents through SPEC Kits, which are distributed ten times each year to ARL members and other interested libraries. The Kits include topically-arranged groupings of unedited primary source documents – selected for their value to administrators and decision-makers – that illustrate a wide range of alternative approaches to specific issues.

Kit documents come from general membership surveys and from selected libraries contacted directly by SPEC, and most Kits are produced within six months of surveys. The documents' value comes from their variety of ideas, methods, and solutions. They are not viewed as finished products, but rather as points of departure for a library's planning efforts and as stimulants to innovative approaches to problem-solving. As such, Kits do not present answers or prescriptions for any one library; instead they illustrate how selected ARL members are planning for or dealing with particular issues. The worth of any one Kit to a particular library will depend upon the specific topic covered and the library's stage of development in that area.

Materials are selected according to the following criteria:

- Presents an approach of potential value to administrators and decision-makers
- Timely, and dealing directly with the topic under consideration
- Probability of application of ideas or thinking to other library situations
- Illustrative of actual practice, rather than theoretical
- Understandable, readable communication

All together, the materials should provide a range of alternative approaches that complement each other, provide variety, and stimulate comparison and contrast.

Libraries can take advantage of the Kit compilations in a number of ways. Administrators can evaluate the assumptions, methods, and results of other libraries' approaches; compare and contrast them; and use the learnings in their own situations. Library staff members can use the kits as professional development and current awareness tools. Committees and task forces can use them to begin a review of current practices. And the Kits can identify other persons or places to contact for further information. Back-up files in the SPEC office also are available for loan to member libraries. In addition, SPEC will conduct on-demand surveys or analyses geared specifically for a single library.

EVALUATION

Kit Title/Number _____

1. Which uses did the library make of this Kit?

2. Please indicate how useful the Kit was for these purposes.

☐ Very Useful ☐ Quite Useful ☐ Somewhat Useful ☐ Not Useful

3. Do you have suggestions for this Kit or for future Kits?

(optional)

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LIBRARY _____

PHONE _____

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ISSN 1060 3582

ARL SPEC Kit #96
ONLINE CATALOGS IN ARL LIBRARIES
July - August 1983

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CHART OF SURVEY RESULTS
Online Catalogs in ARL Libraries
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Institution	Status	Number of Full Records	Source of records	Software	Computer
Minnesota	Planning				
Chicago	Planning				
Michigan State	Planning			CLSI	DEC
Stanford	Planning	800,000	RLIN	SPIRES (local)	IBM
Wisconsin	Development	40,000	OCLC	Local	IBM
Colorado Alliance (1)	Development	1,100,000	OCLC/RLIN/other	Local	Tandem
Research Triangle (2)	Development	330,000	OCLC	Local	Tandem
Tennesssee	Development	500,000	OCLC	GEAC	GEAC
Missouri (3)	Implementation	500,000	OCLC	WLN	Amdahl
Illinois	Implementation	600,000*	OCLC	WLN/LCS	Amdahl
Washington State	Implementation	241,000	WLN	Local	Amdahl
Washington University	Implementation	60,000	OCLC	NOTIS	IBM
California—DLA (4)	Implementation	733,000	OCLC/RLIN/LC/local	Local+ADABAS	Magnuson
New York University	Implementation	450,000	OCLC/RLIN	GEAC	GEAC
Pennsylvania State	Implementation	830,000	OCLC/RLIN/LC/local	LIAS (local)	Honeywell
Virginia Polytechnic	Operational	250,000*	OCLC	VTLS (local)	Hewlitt Packard
Dartmouth	Operational	400,000	OCLC/RLIN/local	BRS and local	DEC
Ohio State	Operational	600,000*	OCLC	LCS (local)	Amdahl
Northwestern	Operational	600,000	LC/Local	NOTIS (local)	IBM
UCLA	Operational	750,000	OCLC	ORION (local)	IBM

*Does not include shorter bibliographic and holdings records:
Illinois 2.6 million, Ohio State 1.3 million, Virginia Tech 200,000

(1) Colorado Alliance of Research Libraries
(2) Triangle Research Library Network includes the University of North Carolina, Duke University, and North Carolina State
(3) The University of Missouri online catalog includes all four campuses
(4) University of California, Division of Library Automation is a systemwide project

CHART OF SURVEY RESULTS
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Online Catalogs in ARL Libraries
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Institution	Search Method	Access Points	Authority Control*	Number of Terminals**
Wisconsin	Command	A T S Se		
Colorado Alliance	Command	Key word of significant fields	None	64/200+
Triangle Research	Comm/Menu	A T L I Rid S	Later phase	Not available
Tennesssee	Comm/Menu	A T S Cn L I G Ak Tk Sk Rid	Development	250
Missouri	Comm/Menu	A Ck Tk Ut S Se Sk I L Rid	Full/Linked	12/132
Illinois	Command	A Ck Tk Ut Se S I L Rid	Full/Linked	120/180
Washington State	Command	A Ck Tk Ut Se S I L Rid	None	Not available
Washington University	Command	A Ut T Se S	Later phase	10/40
California--DLA	Comm/Menu	A T Se Ut Su	Full/Linked	200/1200
New York University	Comm/Menu	A T S Cn L I G Ak Tk Sk Rid	Development	15/100
Pennsylvania State	Comm/Menu	A T S Se I Cn Rid L	Later phase	80/160
Virginia Polytechnic	Comm/Menu	A T S L Se I L	Full/Linked	27/150
Dartmouth	Comm/Menu	Key word of entire record	Not linked	300
Ohio State	Command	A A&T T S	Full/Linked	200
Northwestern	Command	A T S	Later phase	120
UCLA	Command	A S I L Rid G	Full/Linked	170

A&T=Combined author/title
A=Author
Ak=keyword in author
Ck=Keyword in corporate author
Cn=Call number
G=Gov. Document Number
I=ISBN or ISSN
L=LC Card Number
Rid=Record number
S=Subject
Se=Series
Sk=Keyword in subject
T=Title
Tk=Keyword in title
Ut=Uniform title

*Full includes all authorities--name, subject, series, and uniform titles--plus cross references. Linked means that the authority and bibliographic records are associated for the purposes of searching and maintenance.
**Initial/Later

CHART OF SURVEY RESULTS
SPEC Kit #96
Online Catalogs in ARL Libraries
July - August 1983
List of respondents

Institution	Name	Phone
Colorado Alliance of Research Libraries	Ward Shaw	(303) 571-2270
Dartmouth College	Emily G. Fayen	(603) 646-2574
Michigan State University	Thomas E. Albright	(517) 353-6752
New York University	Gail Persky	(212) 598-7710
Northwestern University	Kenton Andersen	(312) 492-7004
Ohio State University	Susan J. Logan	(614) 422-6151
Pennsylvania State University	Gordon W. Rawlins	(814) 865-1850
Stanford University	James Myers	(405) 497-2017
Triangle Research Libraries Network	Jeanne Sawyer	(919) 962-8022
University of California, Division of Library Automation	Karen Coyle	(415) 642-9485
University of California, Los Angeles	Gloria Werner	(213) 825-1201
University of Chicago	Edward Morris	(312) 962-8763
University of Illinois at Urbana-Champaign	Kurt R. Murphy	(217) 333-0318
University of Michigan	Don Tolliver	(313) 764-9356
University of Minnesota	Marilyn McClaskey	(614) 373-2883
University of Missouri	Jim Corey	(314) 882-7233
University of Tennessee--Knoxville	Betty Bengston	(615) 974-6640
University of Wisconsin--Madison	Donna Senzig	(608) 263-7465
Virginia Polytechnic	Glenn R. Lowry	(703) 952-6117
Washington State University	Joselyn Druschel	(509) 335-9621
Washington University	Otha Overholt	(314) 889-5400

Library Operational Requirements :
The Online Public Access Catalog

University of Minnesota Libraries
March 1, 1983

Prepared by
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Library Operational Requirements: The Online Public Access Catalog

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Library Operational Requirements: The Online Public Access Catalog

I. Introduction

A. Appointment and charge of the Online Catalog Task Force

The Online Catalog Task Force was appointed by the University Librarian on December 21, 1982, with the charge to identify the library operational requirements related to all aspects of a University Libraries patron-accessible online catalog. In particular, the following issues were to be addressed:

- database record requirements (III.A.4.)*, including the nature of data to be included, authority control (II.B-C.), and data display (III.A.);
- database access requirements which specifically identify the types of access that should be provided to users (III.B.) as well as desired system response times (IV.A.3.);
- database maintenance considerations, including the handling of additions, changes, file security (II.A.);
- the number and kind of terminals required for access both within and outside the libraries (IV.B.1.);
- relationships with other University Libraries operations, systems, and databases, i.e., cataloging, circulation, interlibrary loan, collection development (I.D., V.D.);
- relationships with regional and national systems and databases (V.A-C.);
- management information that should be generated (IV.C.).

The Task Force was to focus on library requirements rather than systems technology, but any major technical issues to be addressed in the next planning stage were to be identified. Additionally, necessary and desirable-but-not-necessary features were to be separately identified.

B. Methods

The Task Force divided the issues into those most efficiently or effectively outlined by technical services staff, public services staff, or administrative staff, and prepared the original discussion documents in these divisions. Relationships with other University Libraries operations and with regional and national systems were first identified through a brainstorming session by the whole Task Force. As a second stage, each discussion document was introduced by its authors, and questions were identified and occasionally brought to resolution. In the third stage, remaining questions were resolved or identified as appropriate for forwarding as questions or future issues to be addressed, duplications excised, and conflicting elements regularized. The original authors then prepared a revised version, and the separate parts were merged into a final report.

*Designations in parentheses show where in the report each issue is addressed.

C. Report format

The report is in outline form, with brief explanation included where the outline was not sufficient to show complexities, questions, or alternatives involved. All elements are considered by the Task Force to be necessary unless marked by a sign (+). Elements so marked could be ranked as desirable.

D. Basic assumption

The basic assumption behind the following recommendations is that there will be one large database with many parts to each record, and that various elements of each record will support the several systems using the database. Among these systems will be Acquisitions, Serials Control, Cataloging/Online Public Access Catalog (OPAC), and Circulation. This assumption about an underlying commonality is important to the Task Force recommendation on the inclusion of status information in the OPAC, because this status information will be drawn from all of the envisioned systems.

II. Technical considerations

A. File maintenance and file security

N.B. Comments on file maintenance and file security apply to both bibliographic and authority files.

1. **Basic requirements** for file maintenance
   Must be able to accomplish the following maintenance activities:
   a. ADD records:
      1) Already in MARC communication format
         a) from national resource files, e.g., LC, NLM
         b) from other libraries
      2) Not currently in MARC format
         a) original records to be keyed in locally in internal MARC format
         b) in the case of the authority file, minimal records to be generated automatically from each heading which does not yet exist in the authority file which is used in a bibliographic record being entered in the catalog
   b. DELETE entire records
   c. EDIT (i.e., add, delete, or change) any data element in an existing record
   d. Make GLOBAL CHANGES in existing headings:
      1) Changes in entire headings
      2) Changes in individual subfields within headings
      3) Any combination of 1) and 2) above

2. **Time framework requirements** for maintenance activities
   a. Must be able to:
      1) Add records to the catalog in real time:
         a) key in records locally
         b) transfer individual records from a resource file such as the RLIN database
      2) Batch load large files of records periodically
      3) Delete individual records in real time
      4) Edit individual data elements in real time
      5) Make global changes in batch mode periodically
   b. All components of the local system (e.g., acquisitions, online catalog, serials control, circulation) must be fully integrated. Changes in one part of the system should automatically be reflected in other parts of the system when applicable
   c. Indexes to the files should be updated at least once every 24 hours

3. **Maintenance of various versions of the local database**

   The University of Minnesota Libraries' database may exist in several places and in several forms, e.g., locally online, virtually anywhere in page format, online in national databases such as OCLC and RLIN, or online in various local or regional databases.
   Requirements:
   a. There should be the highest feasible degree of synchronization of content of various versions of the database
   b. Procedures for updating various versions of the database should be automatic insofar as possible

4. **Print products required** to aid maintenance activities:
   a. Scheduled listing of minimal authority records generated
   b. Scheduled listing of the results of authority file review
   c. On-demand ordered lists of headings of particular types used in bibliographic records, e.g., all personal name headings in alphabetical order

5. File security requirements
   a. Technical means which are difficult to circumvent for restricting user privileges
      1) User privileges: search, print, send messages
      2) Public services staff privileges: search, save searches, print, change selected status information, e.g., withdraw an item, add temporary copies of an item--others might be defined, send messages
         N.B. The question of which status changes should be accomplished at what locations deserves careful consideration. For example, it may well be most efficient to withdraw items at individual public service locations, rather than notify someone else to withdraw them centrally. On the other hand, changes in call numbers should probably be handled at a few locations only, so that marking equipment need not be widely duplicated
      3) Technical services staff privileges: search, print, send messages, perform routine maintenance activities, i.e., add, delete, or change individual records, and save searches
      4) Selected technical services staff privileges: search, print, send messages, perform routine maintenance activities, and make global changes, and save searches
      5) Systems staff privileges: batch processes
   b. Backup copies of the database
      1) The entire database must be copied periodically and all maintenance transactions should be logged daily so that the database can be reconstructed in case of system malfunction
      2) Secure storage at at least two locations must be provided for copies of the whole database and for transaction logs
      3) Capability for producing complete or partial COM catalogs must exist
   c. Easy backup to the version of the database which existed before a global change was made, in case errors are discovered
   d. Protection against system malfunction
      1) Hardware specifications and equipment maintenance schedules should be devised to minimize the likelihood of data destruction due to hardware malfunction
      2) Error routines should handle all conceivable user errors, so that an individual user cannot put a terminal--or the whole system--out of operation by mistake
   e. Restrictions which will ensure fair use

      Some consideration should be given to the question of what constitutes fair use of the database, especially if machine to machine transfer of large quantities of data is easily accomplished

B. Authority control: technical services requirements

The ease with which the user can access an online catalog depends substantially upon the degree of authority control excercised in the catalog's creation. To ensure a high level of authority control, one component of the online catalog should be a local authority file

From a technical services point of view, the authority file exists to reduce the amount of time needed to exercise a high level of authority control. Therefore, the file should be:

1. **Comprehensive**

The capability to load resource records individually or in batches and to generate minimal authority records from bibliographic records would aid in building a comprehensive file

a. All headings established in the catalog should be included:
   personal names
   corporate names
   conference names
   geographic names
   series
   uniform titles
   subject headings

   N.B. The file must be capable of handling multiple subject heading lists, e.g., LC, MeSH
   +Links between related headings in the various lists would be a desirable feature

b. All relevant information should be included about each heading:
   established form
   unused forms (cross references)
   related terms
     broader/narrower terms
     earlier/later forms (particularly for corporate names)
     "see also" cross references
   notes
     source citation
     sources of verification, non-verification
     conflict resolution details

   N.B. Many records would initially include minimal information; most should be made more comprehensive in the long run

2. **Accessible**

a. Searchable by:
   used forms--as in the bibliographic files
   unused forms and related forms and terms
   truncated forms
   phrase or key word

b. Available in a variety of formats:
   MARC
   complete display with relationships explicitly stated, rather than coded
   brief

3. **Current**

Maintenance requirements would in general be the same as those for the bibliographic database (see II.A.)

One additional feature required for the authority file alone is the automatic generation of minimal authority records from headings in bibliographic records input which did not yet exist in the authority file. Lists of these minimal records could then be reviewed and appropriate action taken, e.g., delete errors, upgrade to full record

N.B. The concept of a "linked" authority control system, in which an established heading is stored once, then linked to any bibliographic record in which it occurs, has been given much attention. Linkage provides one technical means of accomplishing global changes. It is not, however, the only such means, and the

ability to make global changes efficiently, rather than the technical means by which they are accomplished, should be viewed as paramount

4. **Integrated with the technical processing system**

Requirement: A mechanism for comparing each heading in a bibliographic record with headings in the authority file at the point of input should be provided. The resulting display would indicate whether each heading is:

a. An established form
b. An unused form, in which case the established form would also be displayed
c. A form which does not yet appear in the authority file, in which case a minimal authority record would be generated.

The system should not accept a record with an unused form of heading

5. **Reviewed to control quality**

Machine review for the following conditions should be possible:

a. Duplicate headings
b. Reference consistency, i.e., a heading listed as an unused form in one record should not be given as an established form in another record
c. The existence of headings for higher level(s) in a hierarchy if an established heading is a subdivision, e.g., corporate name subdivision, subject heading subdivision
d. The existence of referenced headings, i.e., "see also" or "see also from" headings must exist in the file.

Problems detected during machine review should be printed for human review and resolution

C. Authority control: public service requirements

1. **General requirements** for:

a. Name searches
   1) If a user enters an unused form of name (one which exists only as a cross reference in the authority file), the system should respond with a display of the records in which the used form of the name appears, but it should also provide a message explaining the result, e.g., "Works by Samuel Clemens are listed in this catalog under the name Mark Twain"
   2) If a user enters a name whose authority record includes related names, the system should respond with a display of the records in which the requested name appears, but it should also provide a message suggesting that the user may also wish to search under the related name and some indication of how the two names are related, e.g., "See also the later heading ... "

b. Subject searches
   1) If a user enters an unused form in a subject phrase search, the system should respond with a message telling him/her to search under the used form
   2) If the user enters a valid search, the system should respond with the results of the search as entered, but should also present applicable suggestions for further searching, e.g.,
      a) suggest searching under broader or narrower terms when available
      b) suggest using Boolean operators to broaden or narrow a result

c) suggest using a word rather than a phrase search to broaden a result
d) suggest searching under other headings which include the same word
e) suggest searching under parallel headings in another subject heading list

2. The user should also be able to search the authority file separately if s/he desires. Records as displayed should require minimal interpretation

III. Service and use considerations

A. Data display

1. Display--general considerations

a. The display capability should be kept as flexible and versatile as possilbe, recognizing that changing needs might evolve beyond the basic formats recommended
b. The display should be of the one-step kind, i.e., entering any single but unique data element should lead directly to the record chosen without intervening steps being required
c. The display must be highly legible in term of graphic clarity. This would include giving due consideration to the use of an optimum print size, which should be no smaller or less clear than that now found on RLIN terminals. Consideration needs to be given as to whether more than one print size needs to be built in. Upper and lower case must be available. The lines of print should be perfectly even and clarity should be enhanced by the use of indentation, line justification, and positioning
d. The display should be enhanced and readability should be assisted by the use of non-glare terminal screens which utilize those color contrasts which tend not to fatigue the viewer's eyes. A color contrast adjustment or reverse video feature might be considered in this regard
e. Responses should display page-by-page rather than scrolling
f. +If available and affordable, a split screen capability would be a desirable feature for the purpose of comparing two records simultaneously

2. Format

a. The primary aim of the formatting used should be to maximize the possibilities for instant recognition of the data elements by the viewer
b. The graphic characters and symbols used should be selected on the basis of readability; equal consideration must be given to the placement of the graphic elements within the display
c. The establishment of consistent positions and consistent sequencing of elements would also facilitate recognition
d. The capability to mechanically highlight data elements should be built into the system. This could be in the form of underlining, flashing letters or cursors, capitalization, or boldface
e. It is recommended that four bibliographic display options be offered: Brief, Standard, Long, and MARC (see III.A.4. for more detail)
   1) Brief would be a screen of multiple listings only a line or two in length
   2) Standard would include all parts of a bilbiographic record necessary for identification of an item, with each element on a separate line
   3) Long would include all information on a catalog card in card format, i.e., paragraphs
   4) MARC, the fully-tagged display primarily for staff, would be formatted as in the RLIN Full screen

3. **Display commands (see also III.B.3.d.)**

   a. The command system should have a uniform and simple nature
   b. In addition to using standard command language, the OPAC user should be able to execute certain functions, such as printing, paging forward or backward*, etc., through a set of single function keys or by means of a controllable cursor (mouse) which can be pointed at a desired menu item. A series of menus should be offered listing choices for commands, parameters and display formats. Using this option, the user who did not wish or need to learn a sophisticated, specialized command language would be saved entering lengthy commands on the keyboard
   c. Other command functions, such as NEIGHBOR or PREVIOUS SCREEN are needed
   d. Descriptive introductory information should be liberally provided
   e. Automatic cues should be employed to coach the user when pauses reach a certain length or when negative search results are detected by the system

4. **Content of displays**

   a. Bibliographic displays

      1) RLIN standards

         Foundation records in the database, from which displays will be drawn, will continue to reflect RLIN standards for cataloging. The inclusion of University of Minnesota records in the RLIN database and continued cooperation with other RLG libraries in resource sharing, shared cataloging, and collection development makes this essential. In addition, creation of full RLIN standard records utilizing *AACR2*, *LCSH*, *MeSH*, or other standard subject lists, and MARC content designation ensures that all bibliographic elements needed for display (see III.A.4.a.3)) and access (see III.B.1.) will be present

      2) Minimal level

         RLIN's emerging minimal level cataloging standard should be considered for future use, to enable enlargement of the OPAC by addition of minimal level records for items which otherwise would not be included

      3) OPAC displays

         If 11 or more items are retrieved by a search, the system should indicate the number of items retrieved rather than display bibliographic information, on the assumption that the user may wish to further limit retrieval before displaying results of the search. If 10 or fewer items are retrieved, the system should display Brief records for all 10 items. If 3 or fewer items are retrieved, the system should automatically provide the Standard display for all 3 items. The user should be able to manipulate the display by requesting a particular part or parts of a record, any one record, or any group of records, in any designated order and in any of the four defined display formats. It should be possible to

*Displaying adjacent records in either forward or backward directions should be a system-wide capability, available in all subsystems or files of the OPAC database

request that a given display appear first for individual searches, or to set a default display for certain functions, e.g., default MARC display for technical processing functions, so that all levels of display do not have to be viewed before attaining the desired display

DISPLAY	ELEMENT NAME	MARC or RLIN FIELD/SUBFIELD*	COMMENTS
BRIEF DISPLAY	Item number	--	Elements should be displayed in the order given in this chart; elements should not be labeled, except for the last, location, since these will be coded and not easily recognized; each item retrieved should begin on a new line; the Brief display should appear as outlined above; if the item has been ordered or received, but not yet cataloged, no location will be provided, only the code ACQ**; if the item has been cataloged, the location will be indicated by the RLIN LOC code, which is 5 digits or less, e.g., ART, VET; when there are several copies of an item, all locations should be listed, either alphabetically, or grouped in some way, such as geographically
	Author or corporate body	100 ǂa, b, c 110 ǂa, b, c, d, n 111 ǂa, b, c, d, n 130 ǂa, d, f, k, l, n, p, s	
	Title proper	245 ǂa	
	General material designation	245 ǂh	
	Publication date	008, char. 7-10 (D or PD)	
	Location	950 ǂ1 (LOC)	

*If no subfields are listed with the field number, the recommendation encompasses all possible subfields

**ACQ, both here and in subsequent displays, is not an ideal designation. Something understandable and perhaps reflecting which acquisitions unit (CTS, St. Paul, Biomed, Law) should be devised

3) OPAC displays, continued

DISPLAY	ELEMENT NAME	MARC or RLIN FIELD/SUBFIELD	COMMENTS
STANDARD DISPLAY	Record ID	001 (ID)	Each element of record to begin on separate line; screen layout envisioned to be 3-part: BIB / HOL | STAT ;
	Author or corporate body	100-130	
	Uniform title	240, 243	status codes for circulation should reflect recommendations of the Online Circulation Task Force, and those for serials should reflect recommendations of the Serials Management Task Force; status and holdings for a location should be related; nature of holdings & status portions should be clear; in-process information recommended is on order, order date, parts received, with items not cataloged noted as ACQ only; stack number location for serials should be included in some local holdings field; complete serials holdings should be provided, but for clarity, status should be provided only for unavailable serials; for monographs status should be reported for all holdings; the difference between monograph and serial status reporting should be made clear
	Title and statement of responsibility	245 ǂa, b, c, n, p	
	General material designation	245 ǂh	
	Edition	250	
	Mathematical data	255 (scale for maps)	
	Imprint	260-262	
	Collation	300-305	
	Numeric/alphabetic/chronological designation	362 (for serials)	
	Series	400-490	To be labeled
	Location	950 ǂ1 (LOC)	To be labeled and spelled out fully
	Call number	950 ǂa, b, d (LCAL)	To be labeled
	Holdings	955 ǂc, pt.1-2 (COP & MDES)	
	Local data	901-902 (LDA & LDB)	Shelving information
	Status	--	
	Instructions	--	What to do next if the item is on order or in process; meaning of status codes
LONG DISPLAY	All that is in Standard Display above		Formatted differently from Standard Display--catalog card paragraphs with ISBD punctuation
	Bibliographic notes	020, 022, 023, 024, 027, 028, 030, 086, 222, 246 with 2nd indicator 2-8, 247, 310, 321, 5XX, except 527, 530, 541 765-785, if no corresp. 580	
	Subject tracings	600-652 690-699	
	Name, title & series tracings	700-752 796-799 800-840 896-899	

3) OPAC displays, continued

DISPLAY	ELEMENT NAME	MARC or RLIN FIELD/SUBFIELD	COMMENTS
STANDARD DISPLAY	Record ID	001 (ID)	Each element of record to begin on separate line; screen layout envisioned to be 3-part: BIB / HOL / STAT; status codes for circulation should reflect recommendations of the Online Circulation Task Force, and those for serials should reflect recommendations of the Serials Management Task Force; status and holdings for a location should be related; nature of holdings & status portions should be clear; in-process information recommended is on order, order date, parts received, with items not cataloged noted as ACQ only; stack number location for serials should be included in some local holdings field; complete serials holdings should be provided, but for clarity, status should be provided only for unavailable serials; for monographs status should be reported for all holdings; the difference between monograph and serial status reporting should be made clear
	Author or corporate body	100-130	
	Uniform title	240, 243	
	Title and statement of responsibility	245 ǂa, b, c, n, p	
	General material designation	245 ǂh	
	Edition	250	
	Mathematical data	255 (scale for maps)	
	Imprint	260-262	
	Collation	300-305	
	Numeric/alphabetic/chronological designation	362 (for serials)	
	Series	400-490	To be labeled
	Location	950 ǂ1 (LOC)	To be labeled and spelled out fully
	Call number	950 ǂa, b, d (LCAL)	To be labeled
	Holdings	955 ǂc, pt.1-2 (COP & MDES)	
	Local data	901-902 (LDA & LDB)	Shelving information
	Status	--	
	Instructions	--	What to do next if the item is on order or in process; meaning of status codes
LONG DISPLAY	All that is in Standard Display above		Formatted differently from Standard Display--catalog card paragraphs with ISBD punctuation
	Bibliographic notes	020, 022, 023, 024, 027, 028, 030, 086, 222, 246 with 2nd indicator 2-8, 247, 310, 321, 5XX, except 527, 530, 541 765-785, if no corresp. 580	
	Subject tracings	600-652 690-699	
	Name, title & series tracings	700-752 796-799 800-840 896-899	

3) OPAC displays, continued

DISPLAY	ELEMENT NAME	MARC or RLIN FIELD/SUBFIELD	COMMENTS
MARC DISPLAY	All possible fields		Formatted with all coding, including RLIN mnemonics where they exist. The expectation is that this display would be used primarily by staff processing or updating records, or when further information is needed to meet a user request

b. Authority displays
See II.B-C.

B. Access requirements

1. **Access elements** (searchable fields)
* These are the specific elements of the bibliographic record that should be searchable by users of the online catalog:

a. Primary access elements

Primary access elements are those with which a search can be initiated. For example, "FIND TITLE WORD MEMBRANES" would result in either the number of postings or the bibliographic records satisfying the search. It is necessary that the system be flexible enough to accommodate future needs for indexing and searching under other data elements, such as series report code, as these needs arise

ELEMENT	TYPE OF SEARCH ALLOWED	EXAMPLE
Author, editor, translator, illustrator, etc. (personal name)	Last name only	CARLSON
	Last name initials	CARLSON J
	Last name first name (with or without middle initial or name)	CARLSON JAMES CARLSON JAMES D CARLSON JAMES DONALD J CARLSON
	N.B. The system will automatically truncate forenames to initials so the 2nd and 3rd examples are equivalent as are the 4th and 5th. Names can be entered in any order	
Corporate or conference entry	Keyword Phrase	INTERNATIONAL CONGRESS ON HEMATOLOGY could be retrieved by requesting "Hematology," "International Congress," etc.
Author/title	Author's last name/any word in title	CARLSON/HISTORY
Title	Title word (any keyword in the title)	BLINDNESS
	Title phrase	TOXIC SHOCK
Series	Keyword with or without number Phrase with or without number	MAJOR PROBLEMS IN EDUCATION, v.9 could be retrieved by requesting "Education" or "Major Problems" with or without "9"

a. Primary access elements, continued

ELEMENT	TYPE OF SEARCH ALLOWED*	EXAMPLE
Subject	Subject word Subject phrase N.B. Both main subject headings and subject subdivisions should be searchable with the possibility of specifying where the requested term should appear	SURGERY RUSSIAN LITERATURE
Call number	General class only	"WY" would retrieve all books classed in nursing, "610" would retrieve all books on general medicine
	Full call number, truncated call no.	WY 100 C673a 1983 610.02875 C673a
Unique item identifier as assigned by the circulation system (could be a bar code)	Exact number	Whatever type of identifiers are used
RLIN record ID number	Exact number	MNUM352970-B MNUG82S3251
LC card number	Exact number	79-101221
ISBN	Exact number, left or right truncation	0-671-20394-0
ISSN	Exact number	0362-1596
CODEN	Exact string	AISJB6
SuDoc number	Exact number, truncated SuDoc no.	GA 1.13:MWD-76-109
University of Minnesota course number /instructor (for a list of items on reserve for a particular course)	Exact course number/instructor's last name	GCB 5-100/Johnson

N.B. Specific fields and subfields should be correlated with the access elements chosen, e.g., title: 130, 240, 243, 245, 246, 247, 740, 800 ≠t, etc.

b. Refining elements

Refining elements are those that can be used to qualify or limit a group of records already retrieved. They cannot be used to initiate a search. For example, once the system has reported that there are 500 records with the word "Membranes" in the title, the user may use a refining element to limit the retrieval to only those records with the year 1982 or 1983 in the imprint

*Whenever the phrase "Exact number" is used, it means number or alphanumeric, depending on the nature of the element. In all cases, the system should accept the number with or without spacing and punctuation.

b. Refining elements, continued

ELEMENT	TYPE OF SEARCH ALLOWED	EXAMPLE
Country of origin	Keyword Phrase	Finland United States
Date	Number Range	1982 196#
+Edition number	Number	62
General material designation	Keyword Phrase	Microform Sound recording
Language	3-letter code for language	ENG for English
Library location (see III.B.1.c.)	Code for campus library	ART or ART LIB for Art Library
Publisher	Keyword	ACADEMIC would limit to those published by Academic Press

c. Library location

An OPAC search should default to the local library as defined by that service unit, e.g., Math Library or all St. Paul Campus libraries, or to the library specified as the local library at the start of the search. If the item the user is looking for is not held at the local library, or at another library specified in the search, the system should automatically deafult to other libraries' holdings and display the record found there, with a clear message indicating that is what the system has done. The user should be able to manipulate the library location, combination of locations, or all libraries in the system.

N.B. Question for future discussion: Should user access go beyond the University Libraries holdings to holdings of other RLG member libraries, or to a State of Minnesota online catalog?

2. **Access methods** (types of searches allowed)

a. Keyword

This is a free-text search term. A specific element can be requested, such as title or subject main heading. If no element is specified, the system should default to all indexed primary access elements

b. Phrase

This is a search for two or more words, in the same order as entered into the system. Initial articles should be excluded, as well as insignificant, or "stop" words. It should be possible to start at any point in the phrase. The system should automatically exclude stop words, even though they may be entered by the user.

For example, to find proceedings of The International Congress of Experimental Biologists and Chemists, the user may enter any one of the following phrases:

The International Congress of Experimental Biologists and Chemists
International Congress Experimental Biologists Chemists
International Congress Experimental Biologists
International Congress Experimental
International Congress
Experimental Biologists Chemists
Experimental Biologists
Biologists Chemists
Congress Experimental Biologists Chemists
Congress Experimental Biologists
etc.

c. Truncation*

Users of the OPAC should be able to use the following methods of truncation:

1) Single character truncation, either within a word or at the end of a word
   Example: WOM#N would retrieve either WOMAN or WOMEN
   LADDER# would retrieve either LADDER or LADDERS, or any other word beginning with the characters LADDER followed by any other single character
   Repetition of the single character truncation would give a specific limit to the number of additional characters possible

2) Unlimited character truncation for words or phrases
   Example: BIOLOG$ would retrieve BIOLOGY, BIOLOGICAL, BIOLOGICALLY, BIOLOGIST, etc.
   INTRODUCTION TO PARASITOL$ would retrieve INTRODUCTION TO PARASITOLOGY, as well as INTRODUCTION TO PARASITOLOGICAL IDENTIFICATION, etc.
   INTRODUCTION TO PARASITOLOGY $ would retrieve INTRODUCTION TO PARASITOLOGY, as well as INTRODUCTION TO PARASITOLOGY FOR BEGINNERS, INTRODUCTION TO PARASITOLOGY AND TROPICAL DISEASE, etc.

d. Boolean operators

OPAC users should be able to perform search strategies using the Boolean operators AND, OR, and NOT. Also, commands denoting the relative position of terms or phrases should be available. Two such commands in common use are:

1) ADJ: This is the adjacency command. It requires that two elements be adjacent to each other, in the order specified.
   N.B. This will not be necessary if phrase searching starting at any point is possible

2) WITH: This is the with command. It requires that two or more elements be present in the same field, in any order. Using the with command, one could search for SIBERIA$ WITH AGRICULTUR## and retrieve any of the following titles:

*A method should be devised to distinguish internal versus end truncation and indicate single character versus unlimited character. In these examples, # asks for single character and $ asks for unlimited characters following.

SIBERIAN AGRICULTURE
AGRICULTURAL PRACTICES IN SIBERIA
AGRICULTURE IN SIBERIA
SIBERIA'S AGRICULTURAL ECONOMY

e. Element limitation

Limiting by elements allows the user to construct a much more refined search strategy. The default in the system should probably be to all indexed primary access elements in the record, to allow for maximum searching flexibility. Being able to limit one's search strategy by elements would help minimize the possibility of false drops. For example, if one is looking for a book authored by a person named MOOSE, by entering the command AUTHOR = MOOSE, or A = MOOSE, one will be able to eliminate false drops such as the title, THE MOOSE OF MINNESOTA

f. Browse

A necessary browse feature for the OPAC is the ability to browse subject and name authority files. There should be a command that allows the user to display a group of subject headings or name authority entries from a designated part of the database. For example, if one wished to look through a list of subject headings used in the OPAC that contain the word ART, one could enter the search as BROWSE SUBJECT WORD ART. The system should respond with a display something like the following:

THE FOLLOWING SUBJECT HEADINGS THAT INCLUDE
THE WORD "ART" ARE CURRENTLY BEING USED IN
THE OPAC:

ACTION IN ART
ART AND SOCIETY
ART, COMPARATIVE
ART NOUVEAU
DRAPERY IN ART
WOMEN IN ART

The system could display the 20 or so subject headings or name authority entries from the middle of the list of all headings satisfying the search requirements and then allow the user to to enter short mnemonic or one-key commands to page forward or backward to look at an adjacent group of 20 headings

g. Save search

The OPAC should be able to save searches either temporarily or permanently, and add to permanently-saved searches as new records are added to the database. Save search is useful for searches that are frequently requested, e.g., CONSUMER PROTECTION, VIETNAM WAR, or areas of high interest in a special subject library

h. Derived key

+There are many types of derived, or abbreviated, keys that can be used for searching OPACs. For the most part, these are based on formulas of minimum or maximum characters abbreviated from particular words in the author, title, subject or series fields. An example is the derived keys used in the CATLINE database,

where a title can be searched by inputting the first three letters of the first significant word of the title, followed by the first letter of the next three words. To look for the title AN INTRODUCTION TO PHYSICAL DIAGNOSIS FOR NURSES, the user would enter: INT/I/P/D. The disadvantages of derived keys are:

1) The exact words in the title must be known in exact order to find the desired title
2) There can be false drops. The above example might also have retrieved INTRODUCTION TO PEDIATRIC DISEASES or INTELLIGENCE TRAITS: POODLES, DACHSHUNDS AND BASSET HOUNDS

The chief advantage of derived keys is that they allow more rapid retrieval. Ability to search by derived keys should probably be listed as an optional, but not necessarily desirable, access method

3. **General considerations**

a. What should be in the catalog?

Eventually, everything the libraries own should be included in the OPAC. Initially, however, the catalog will be composed of only those materials that are already cataloged and in machine-readable form on OCLC or RLIN tapes. Priorities for the conversion and inclusion of other materials will have to be set. Types of materials include the following: MARC records--items fully cataloged and in machine-readable form on OCLC or RLIN tapes; retrospective conversion records--items cataloged manually, but later added to the machine-readable database; manually-cataloged items--conversion priority should be based on management reports of circulation; collections currently not centrally bibliographically controlled, but cataloged by the holding unit--not yet machine-readable; those items uncataloged anywhere, e.g., government documents, certain AV or archival materials; and non-roman materials which currently cannot be added, in vernacular script, to the database, e.g., Chinese, Hebrew

b. Stop words

Almost every database has a list of words, both English and foreign-language, that are considered insignificant and are ignored for storage and retrieval purposes. The OPAC will also need such a list. When the stop word list is created for the OPAC, every effort should be made to keep the list as small as possible. There should be a facility for overriding the stop word function to allow retrieval of terms such as TYPE "A" VIRUS, GROUP "A" STREPTOCOCCI, etc. ("A", because it is an English article, is often on stop word lists)

c. Postings overflows

Postings overflows are messages that the user gets from the system when s/he has entered a term that results in an especially large retrieval. For example, in RLIN there are many words that one cannot search under because the system responds with a TERM TOO GENERAL message. It is hope that the size of the University of

Minnesota OPAC database will be small enough that such messages will be needed infrequently. If postings overflows messages are needed for certain terms, it is hoped that the number of terms made unsearchable in this way will be minimized

d. Command language (see also III.A.3.)

The command language used by the OPAC should be both easy to use and effective. Command languages used by 10 existing OPACs were reviewed by Charles Hildreth in chapter 7 of *Online Public Access catalogs: The User Interface* (Dublin, Ohio: OCLC, 1982). Two systems employed language deemed especially flexible, functional, simple, and consistent were the MELVYL system of the University of California and the Mankato State University OPAC. The MELVYL system is compatible with and similar to RLIN, and therefore presents certain advantages, e.g., the library staff is already familiar with this command language. The Mankato system, on the other hand, seems to accommodate more flexible searching strategies, such as GREATER THAN 1970 for restricting a search to any publication with a date after 1970. The best command language for the University of Minnesota OPAC might be a combination of the best command features of these two systems

IV. Management considerations

A. System reliability and response time

1. The system should be available to use at least during the hours in which any library in the system is open
2. The system should be available for 99% of the time for which it is scheduled, i.e., downtime of 1% or less
3. The system should have an average response time of no more than 5 to 7 seconds per command, with a maximum response time of 30 seconds

B. Equipment

1. **Terminals**
   a. Each library unit, e.g., Physics Library, Government Documents, should receive at least one CRT with printer that allows full access to the OPAC. Additional terminal allocation should be done in such a manner as to minimize queueing at the busiest times of each unit's schedule. Such allocation should also seek to minimize possible conflict between staff use and public access
   b. There should be a variety of terminals to choose from, depending on the needs of the library unit, location, user, etc. There should be both dedicated and dial-up terminals available. There should also be some variety in the types of each, such as terminals with keyboards and terminals with touch control. The latter are necessary to assure system availability to users with certain disabilities. Talking terminals should be available for visually-impaired users. Terminals that can handle non-roman scripts, e.g., Hebrew and Chinese, should be available. The ideal terminal would be able to display multiple scripts at the same time. For example, if the user requested items on U.S. FOREIGN POLICY, all titles in the catalog on that subject should display in one list, whether in English, Russian, Greek, Arabic, or Japanese. There should also be terminals with limited storage memory to process extended searches
   c. Terminals should be secured at their locations or be able to be secured when the library is not staffed. However, such security should not interfere with the flexibility of location that is needed to allow for growth and change
   d. The system should have multiple ports that allow access by terminals that do not belong to the library, e.g., personal and departmental terminals. The use of these ports needs to be controlled by the library
   e. The library should consider being responsible for the placement of terminals on campus outside the library
   f. The library should consider having terminals for loan
2. Printers
   a. Every library unit will have at least one terminal with print capability
   b. Every terminal need not have print capability. At multiple terminal sites, some terminals should be assigned for quick look-up only
   c. Each terminal/printer configuration must have the following:
      1) The ability to begin the print function with a one-key command
      2) The ability to stop the print function whenever desired with a one-key command
      3) The ability to begin or resume the print function wherever the user indicates by placement of the cursor
   d. Other recommendations related to printers:
      1) Reliability
      2) Local servicing
      3) A mixture of good to excellent quality print

4) A mixture of medium to high-speed printers
5) As near to silent as possible
6) Printers connected to terminals for non-roman scripts should have the capability to print non-roman scripts

e. The library will need to limit free online printing. There should be the capability to provide offline printing for larger printing jobs at some charge to the user
f. There must be a method to monitor printing done at non-library terminals so as to not overload the system

3. **Work stations**

The types of work stations may vary. A University of Minnesota study should be made of which types will be needed with various types of terminal/printer configurations. Each should provide adequate writing space even if a printer is available. There should be left- and right-handed work stations at multiple terminal sites. Terminals for users who are disabled should be provided with suitable work stations

C. Management information

1. **Change over time**

There will be a greater need for management information during the early days of the system since there will be a need to test formats, monitor system performance, etc.

2. **Sampling**

Management information may not need to be collected all the time, but there should be the capability to collect such information at intervals, either stated or unstated

3. **Types of management information that are needed**
a. Number of users per terminal correlated with time of day, day of week, time of year, etc.
b. Number of searches per user and the amount of time each search takes
c. Response time:
1) System wide
2) Per type of search
3) Per type of terminal
d. Number of times user makes use of prompt or help screens
e. Identification of recurring user errors in search strategies, etc. This will allow system development to minimize such errors, or to provide additional searching capabilities
f. Identification of success or failure of searches
g. Types of search strategies employed, based on the types of search strategies available
h. Acquisitions information
1) Fund information at stated intervals
2) Current accessions lists
i. User information
1) It is <u>not</u> desirable to identify the individual user who is accessing the system as long as that user is using a library terminal; this will ensure that privacy is maintained. It may be necessary to identify users who are accessing the system from outside the library in order to maintain some type of control

2) It should be possible to identify user status such as faculty, staff, graduate, undergraduate, non-university-affiliated user, etc., at least during stated periods

D. System messaging capabilities

1. Authorization and use

The system should have the capability to allow the user to present information to individuals responsible for monitoring certain functions of the system. This implies, of course, that those monitoring the system should be able to access the system for messages that pertain to the function for which they are responsible

2. Messaging capabilities should include the following:
   a. User could indicate a hold on on-order materials
   b. User could initiate document delivery
   c. User could initiate inter-library loan
   d. Faculty member could request materials for class reserve
   e. User could suggest purchases
   f. Staff could point out errors in database
   g. Staff could point out system problems

E. User education

There should be a sophisticated and readily-available user education program, both online and other types of instruction, to accompany the system. This should include formal, informal, and self-study types of instruction. It will also be necessary to provide instructional materials for the remote user

V. Relationships

In addition to relationships already mentioned in connection with specific activities, the following internal and external databases, networks, and functions were identified by the Task Force. The list is not exhaustive, but indicates possibilities for exploration and cooperation

A. National

1. RLIN (full membership)
2. OCLC (tapeloading)
3. CONSER/MULS
4. New Serial Titles
5. NUC
6. NLM
7. NAL
8. LAWNET
9. Serline (tapeloading)
10. Docline (ILL)

B. Regional

1. MINITEX
2. Catalog for Mental Health Systems (tapeloading)

C. State

1. Libraries on other University campuses (Duluth, etc.)
2. State University System online catalog

D. University

1. All Twin Cities Campus libraries should be represented in the OPAC
   a. All units that are part of the official "Libraries"
   b. Law Library
2. MILS (SIMS)
3. University online accounting system
4. University online student and staff personnel records
   a. To enable standard student and faculty ID for all purposes
   b. Fine collections
   c. Record holds
   d. Central up-to-date address file
5. University Bindery
6. University Audio-Visual Library Service online booking system

N.B. Maintenance of several of the realtionships listed in section V. requires a system capable of producing copies of some or all records in standard MARC communications format

T R L N
Triangle Research Libraries Network

BIS-1

AN OVERVIEW OF THE PROTOTYPE OF THE TRLN BIBLIOGRAPHIC INFORMATION SYSTEM (BIS-1)

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This is a broad overview of the prototype of the TRLN Online Catalog (the Bibliographic Information System, edition 1, or BIS-1). The document represents the decisions reached by the TRLN Systems Advisory Committee and the TRLN Cataloging Policy Committee. The overview largely describes the public-apparent features of the system, and specifically is not concerned with the technical editing facilities used in record maintenance. This document is for the library staff, and is distributed for informational purposes. It is not intended to replace training materials for library users, which will be made available at a later time. Full proposals for staff review will be issued later for incorporation in the system design for the full online catalog (BIS-2).

Introduction.

In October 1982, the TRLN Cataloging Policy Committee and the TRLN Systems Advisory Committee, along with the TRLN staff, began designing a prototype catalog (hereinafter: BIS-1). The Cataloging Policy Committee members are: (1) from Duke, Barbara Branson, Arnold Hirshon, and Kathy Kott (Law Library); (2) from North Carolina State University, Walter High and Jinnie Davis; and (3) from the University of North Carolina at Chapel Hill, David Gleim, Roberta Engleman, and April Wreath (Health Sciences). The Systems Advisory Committee, which is responsible for the public apparent aspects of the system, is composed of three reference librarians and a cataloging consultant. The members from reference are Ken Berger (Duke), Nancy Frazier (UNC-CH), and Robert Pollard (NCSU), and the cataloging consultant is Arnold Hirshon (Duke). In addition, Jeanne Sawyer (from the TRLN staff) is on both committees, and Gwyneth Duncan (TRLN staff) is on the Systems Advisory Committee.

The prototype is a very trimmed down version of the full online catalog system (hereinafter: BIS-2) that is being planned for later implementation. Some of the reasons for the prototype to be developed were:

- to have a "test" version for use in public demonstrations to gain first-hand the reactions of users to the online system
- to provide a method for "debugging" system operations
- to provide a tangible product demonstrating the work and goals of the TRLN project
- to provide a comprehensive design for the system. This is useful not only so that staff may have a better idea of what the eventual complete system may look like, but also to give more cohesion to the general directions taken in system design.

By generating a prototype catalog, it is hoped that it will be easier to gather staff reactions to full proposals for the BIS-2 design as they are developed.

Prior to designing BIS-1, the two committees had developed specifications for the full online catalog design. Where those specifications were complete and approved, the decisions reflected in those documents were largely incorporated into the BIS-1 design. As soon as the design work is complete for BIS-1, the committees will return to designing the BIS-2 specifications, and proposals on the various aspects of the system design will be sent to the library staff for comment.

The developing of full proposals normally proceeds in this manner: each committee discusses a particular aspect of the catalog (e.g., filing order of bibliographic displays) and then reaches an agreement (e.g., to use the ALA Filing Rules). A member of the committee then writes a proposal, following the prescribed TRLN format. The written proposal is reviewed by the originating committee, and then is sent to the other committee for comments and changes. The proposal is thereafter distributed to the staff at all three TRLN institutions. Staff members are invited to give written comments to one of the institutional representatives, and the representatives bring those comments back for reaction to the originating committee. The committee considers these comments, makes any necessary adjustments, and prepares a summary of the responses. The final version of the proposal, along with the summary of comments, is sent to the Coordinating Committee for discussion and final approval.

This is obviously a lengthy process. To try to compress the development schedule, the TRLN Coordinating Committee (composed of the heads of public services, technical services, and library systems from each of the three institutions) agreed to suspend the normal decision-making process. Instead, for BIS-1 only, specifications were to be prepared by the originating committees (i.e., Cataloging Policy and Systems Advisory) and they were not to be distributed to the library staff for comment. This document, therefore, is distributed for informational purposes. Distribution of full proposals for BIS-2 will resume after the BIS-1 specifications have been completed.

The description given below is of BIS-1 only. Some additional preliminary information about possible aspects of BIS-2 have been included where available. The description is presented in four sections:

1. Searching Modes.
2. Accessible Fields And Indexing.
3. Displays of Bibliographic and Holdings Records
4. System Commands and General Features.

1. Search Modes

The BIS-1 prototype employ a combination of "prompting" and "command" modes. This means that instructions will be sent to the system in the command, but the responses received from the system will include some prompts and messages that will give additional instruction to the user as to how to proceed. These will be seen in some of the examples of the bibliographic and holdings displays.

BIS-2, however, will use three modes of operation for searching:

1. "Guided mode" will be for users with straightforward search requirements and little-or-no experience with the catalog.

2. "Prompting mode" will be for users with searches that are too complicated to handle in "guided mode" or who need a more efficient method of operation than is provided in "guided mode. "The "prompted mode" will largely be a "menu driven" approach, i.e., the user will be asked to choose from a number of choices.

3. "Command mode" will be for experienced users who need to make full use of system facilities in the most efficient manner possible.

2. Accessible Fields and Indexing.

In an automated system, the computer maintains the location of the records through the use of various "indexes." For example, there will be a "name" index, a "title" index, etc. There are different types of indexes for different types of entries. Although the purpose of the index is primarily for the system to keep track of which entries appear with which records, as well as how often those entries appear in the system, the indexes are also available for public viewing.

In BIS-1, there will be only three types of indexes. These indexes are hierarchically arranged so that the user could employ the general category (e.g., "names") or the specific (e.g., "personal names"). The three types of indexes are hierarchically arranged as follows:

1. Names - this will include personal and corporate names that appear in the cataloging record as either the main or as an added entry. It will be possible to specify whether the search should be specifically of a personal or corporate name, or whether all names should be searched without specificity.

EXAMPLE 1: A PORTION OF THE NAME INDEX

index name Bubb

NAME INDEX

INDEX#		#ITEMS
1	Bubb, Beelzah, 1321-	134
*2	Bubb, Bernard	56475
3	Bubb, Bernard, 1908-1959.	23
4	Bubb, Betty	345
5	Bubb, Bobbie	234
6	Bubb, Bobby	897
7	Bubb, Charlie	9
8	Bubb, Daniel	8
9	Bubb, Horace	87
10	Bubb Moving and Trucking Company. Wheels Division	3
11	Bubb Trucking and Moving Company. Wheels Division	1
*12	Bubb, Zaphod	34637
13	Bubba, Hubba	89
14	Bubba, Hubba, 1920-1929.	13
15	Bubba, Hubba, 1921-1948.	3999
16	Bubba, Hubert	89

Index#'s marked with an * exceed the system limit of 4000 items.
To retrieve records, enter the Index# or Index#'s, then press "enter."
For index screens in sequence, press "Next" or "Previous" Screen.

2. Title - this index will include different types of titles that may be accessed either separately or as a single file. The separate indexes are:

   a. Title page titles
   b. Uniform titles
   c. Series and set titles (combined in one index). Note that this index will include both "traced" and "not traced" series statements that appear in the record.

3. Numerical indexes - these will include (in separate indexes) the Library of Congress Card, the International Standard Numbers, and the OCLC (system) number.

Notes about BIS-2.

- Keywords and Subject Searching. In BIS-1 there will be no access by keywords, subject headings, or call numbers. In addition, it will not be possible to "limit" searches, e.g., by adding the language or date of publication. Widespread use of all of these techniques is planned for BIS-2.

- Boolean Logic. There will be Boolean combinations in BIS-2, however it will not be possible even to combine names and titles in one search in BIS-1. Therefore, in BIS-1, for "name/title entries" (such as author/title added entries like "General Motors / Annual Report") the name portion will be indexed with the names, and the titles will be indexed with the titles. The user will need to be aware of this when constructing a search argument.

  Use of Boolean combinations will also be possible for keywords and subjects in BIS-2.

3. Displays.

There are two types of records that can be displayed: bibliographic and holdings.

A. Bibliographic Records.

There are three levels of public-oriented bibliographic records: (1) summary; (2) basic; and (3) full. There is an additional record, designed primarily for staff use, called the "tagged" display, which will look essentially the same as the OCLC display of bibliographic records.

Bibliographic displays will not include holdings information other than location and call number information. The representation of holdings of multiple volumes was abandoned because the data would have: (1) been difficult to supply; (2) eroded system response time; (3) taken up too much space on the displays; and (4) caused later problems when the circulation and acquisitions functions were added. Holdings information will be available, however, through the public holdings display that is described later in this document.

1. SUMMARY Displays.

The approved TRLN document on Display Elements called for a table of contents screen as well as a summary. It has been determined upon further investigation that the table of contents will be omitted from BIS-1 and further designs because: there was confusion about its relationship to both the "indexes" and the "summary display, and the "contents" was a large cause of that confusion; the "contents" would not have been useful for name searches; the "index" will still be available for title searches; the "contents" is not expected to be needed that often in BIS-1 because of the size of the database, and it becomes less necessary in BIS-2 as more powerful search capabilities (e.g., Boolean combinations) become possible.

The purpose of the summary screen is to get the user to where they want to be in the basic display, not to supplant it. Therefore there are no call numbers or locations shown on the summary screen.

Example 2 on the next page shows a sample of a display of the "summary". Note that this is an example of a summary screen for a name search. Some features of this display are standard to all displays of bibliographic records.

1. On the first line of all displays, the search argument that had been input by the user is repeated. The construction of search arguments will be discussed in more detail below.
   Immediately following the search argument is a statement of how many "items" (i.e., records) are in the system under that search argument and which therefore have been retrieved.

2. The next line is left blank to allow the system to respond with any important messages before giving the display. On the line following this blank line is the label for the screen (in this case, SUMMARY DISPLAY).

3. At the bottom of the screen are prompts to instruct the user what to do next. In this example, if the user were to press for the "next screen", the next screen of the summary display would be shown. In addition, the prompts instruct how to receive the "basic" displays.

EXAMPLE 2: A "SUMMARY" SCREEN RESPONDING TO A NAME SEARCH

name bubb, beelzah (retrieved 134 items)

SUMMARY DISPLAY

ITEM		FORMAT	DATE
	BUBB, BEELZAH, 1321-		
1	The comedy of errors	BOOK	1972
2	The comedy of intentions	BOOK	1976
3	Gone to hell in a handcart	MUSIC	1983
4	Gone to hell in a motorcar	BOOK	1976
5	Gone to hell in a Nash	SOUND	1938
6	Gone to hell in an Oldsmobile	A-V	1983
7	Gone to hell with a xylophone	MUSIC	1983
8	Hi there, wanna sell your soul?	BOOK	1944
9	It's me again	BOOK	1971
10	King John was not a merry old soul	BOOK	1974
11	King Lear jettisoned his plans over Fuquay-Varina	MUSIC	1972
12	King Richard III had a devilish time	BOOK	1981
13	Measure for measure you can't beat me	MUSIC	1980
14	The merchant of Venice was a man after my own heart	BOOK	1955
15	Titus Andronicus was no handyman	BOOK	1974

For SUMMARY screens in sequence, press "Next" or "Previous" Screen
For BASIC display of an item, type "ba" with the item no., then press "Enter"

In the previous example, which specifically shows a "summary" display responding to a name search, note that:

1. The name is shown only once (whether as main or added entry) in capital letters.

2. The individual titles are enumerated underneath the author's name. The numbers that appear in the left column are the retrieval set item numbers. Each record retrieved is put into a sequence. If, for example, the user wanted to go straight to the basic record for Gone to hell in a handcart, then the user would (according to the prompting message at the bottom of the screen) input "ba 3" in the "command area". If the user, however, wanted to go through all of the records retrieved by that author, it would be possible to page through the records in the basic display screen-by-screen simply by asking for "basic."

3. The summary screen also shows the format of the material (Book, A-V, Sound (for sound recording), Serial, Map, Manuscript (MSS), or Music) or Micro (for microforms) and the date of publication.

The next example is a "summary" screen for a title search. Note that each title is separately enumerated. If the item has a name main entry, or if the item retrieved is name/title added entry, the name entry appears indented underneath the title (e.g., in item number 1 below, "Austin, Mary Hunter, 1868-1934) appears below the title, and is indented. If there is no name associated with the title (e.g., for a title main entry) then the title appears alone.

EXAMPLE 3: A "SUMMARY" SCREEN RESPONDING TO A TITLE SEARCH

title gone (retrieved 176 items)

SUMMARY DISPLAY

ITEM		FORMAT	DATE
1	Gone to heck in Januar Austin, Mary Hunter, 1868-1934.	BOOK	1979
2	Gone to heck in July	BOOK	1982
3	Gone to heck in my own little Toyota Frank, Ellen Eve	BOOK	1979
4	Gone to heck in your big Cadillac Andrews, William L., 1946-	BOOK	1980
5	Gone to heck, will be back soon	BOOK	1980
6	Gone to heck, will you be mine? Daugherty, Sarah B., 1949-	BOOK	1981
7	Gone to hell in a handcart Bubb, Beelzah, 1321-	MUSIC	1983
8	Gone to hell in a motorcar Bubb, Beelzah, 1321-	MICRO	1976
9	Gone to hell in a Nash Bubb, Beelzah, 1321-	BOOK	1981

For SUMMARY screens in sequence, press "Next" or "Previous" Screen
For BASIC display of an item, type "ba", the item no., then press "Enter"

2. BASIC display

The basic display is intended to serve the bibliographical needs of the greatest number of users. Example 4, of a basic display, appears on the next page. Each entry consists of the following:

a. The retrieval set item number.

b. The "system number" - this is the OCLC number, also known as the TRLN number, also known as the record identification number, also known as the RID. This number is unique to the record and does not change, regardless of the retrieval set.

c. The bibliographical information. Note that in the basic display this information is labelled. Although labels do require additional display space, they were employed for the "basic" display because this is expected to be the most used display, and the latest research on online catalogs shows that labels are preferred by users. Within the bibliographical information are:

1. Name. Note that the name shown here is the name that responded to the search argument. If the user had searched under an name that was an added entry, that added entry would appear in the basic display as "Name" instead of the main entry, and the name main entry would be omitted. This is done because two lines, both labelled "Name" would have been confusing, and this solution is consistent with the ALA Filing Rules.

2. Title. The title and other title information (such as subtitle) would be displayed here, as well as the material designation (such as sound recording). The author statement, which is included with the title in full records, does not appear in basic records.

d. Edition. Although example 4 does not show titles that have edition statement, edition statements are included for basic displays (when applicable). Edition statements would be labelled ED.

e. Imprint. The label is IMPR.

f. Language. This information does not ordinarily appear on catalog cards, but because it is available in coded form in the bibliographic records, we thought it would be useful to include it here. For MUSIC SCORES, the form of composition code also appears on this line, with the label "COMP:."

g. Next is the location and call number information. Note that the locations are stacked together whenever they "share" the same call number. Location information includes sublocation information (e.g., "Reference") and oversize information. Where a collection is unclassified, the "call number" space is left blank. Note that unlike the catalog cards, location names are spelled out whenever practical.

Example 4: Basic Display

```
-------------------------------------------------------------------------------
name bubb, beelzan  (retrieved 134 items)

                              BASIC DISPLAY

Item 3 of 134                                          SYSTEM NO.: #1234567
NAME : Bubb, Beelzan, 1321-
TITLE: Gone to hell in a handcart [printed music] : transportation in the Middle
       Ages going to neck and back
IMPR : [Middlebury, Vt. Middlebury College Press, 1977]
LANG : English                 COMP : chants, religions other than Christian
LOC  : Perkins ; Music Reference folio      CALL#: 210.5551212 B789 G123 1983
LOC  : Rare Book Room                       CALL#:

Item 4 of 134                                          SYSTEM NO.: #3455678
NAME : Bubb, Beelzan, 1321-
TITLE: Gone to hell in a motorcar
IMPR : Detroit : General Motors, 1976.
LANG : English
LOC  : Undergraduate Library                Call#: 345.56 B789 G124 1976

For BASIC screens in sequence, press "NEXT" or "PREVIOUS" screen
For HOLDINGS of an item, type the item no., then press "BIB/HOLD"
For FULL display of an item, type "fu" with the item no., then press "ENTER"
To go to the SUMMARY, type "su", then press "ENTER"
-------------------------------------------------------------------------------
```

3. FULL display

Because the "full" display is not expected to be used as often as the "basic" display, and in an effort to save space on the display, there are few labels for the bibliographic information. An example of the full display is given on the next page.

a. The next line after the screen label and number is the retrieval set item number and the system number. To get to retrieval set item number 4 it would be possible to either:

   1. Use the "next item" command, which would then make the system skip over the second screen of display for item number 3 and go directly to screen 1 of item 4, or
   2. Use the "next screen" key to call up the second screen for item 3. After the second screen is displayed, use the "next screen" key again to get the first screen of item 4.

b. This display shows a record where the main entry was the entry searched. If the search had been of a title or a name added entry, they would appear above the main entry in the same way as they do on a catalog card, only with slightly different indentions. The title, edition (if present), imprint and physical description area follow thereafter.

c. The location and call number information appear next. They appear this early in the display so the data will be on the first screen of full displays, even if multiple screens are required. The location/call number information is displayed exactly the same as it is in the basic display.

d. The bibliographic notes come next, in a block.

   1. Similar to the basic display, the language (and form of composition, for music scores) is shown here.

   2. Note that series do not directly follow the collation (physical description area), but rather appear (without brackets) as the first note.

   3. If there are piece specific notes about the item, the first note (after the series statement) would read: "For notes about specific copies, see Holdings record." This note will be supplied automatically by the system.

e. Although subject headings cannot be searched in BIS-1, the subject tracings are shown for the benefit of those users who wish to identify the subject content of the item, or who wish to take that information and go to the card catalog. Later, of course, in BIS-2 these subject headings will be available. Unlike the card catalog, this information (as well as the added entries) is explicitly labelled in the full display.

f. The added entries are all shown as a group.

Example 43: Full Display

```
----------------------------------------------------------------------------
Name bubb, beelzan  (retrieved 134 items)

                                    FULL DISPLAY   Screen  1 of  2 for this item

Item 3 of 134                                              SYSTEM NO.: #1234567
Bubb, Beelzan, 1320-
  Gone to hell in a handcart [printed music] : transportation in the Middle Ages
going to neck and back / Beelzan (Hubba) Bubb, with the assistance of Hay Dees.
-- Gaza Strippe : Waynamanger Press, 1983.
  1 vocal score : ill. (some col.) ; 88 cm.

LOC: Perkins ; Music Reference folio      CALL#: 210.5551212 B789 G123 1983
LOC: Rare Book Room                       CALL#:

  Lang: English                 Comp: chant, religions other than Christian
  For notes about specific copies, see Holdings display.
  Burning series ; no. 3
  Includes introduction by John DeLorean.


For FULL screens in sequence, press "NEXT" or "PREVIOUS" screen
For HOLDINGS of the item, press "BIB/HOLD"
For BASIC display of the item, type "ba", then press "ENTER"
To go to the SUMMARY, type "su", then press "ENTER"
----------------------------------------------------------------------------
----------------------------------------------------------------------------
Name bubb, beelzan  (retrieved 134 items)

Item 3 of 134                       FULL DISPLAY   Screen  2 of  2 for this item

SUBJECT HEADINGS:
  1. Hell--Maps
  2. Transportation--Hell

OTHER NAMES AND TITLES BY WHICH THIS RECORD MAY BE SEARCHED:
Names
  1. Dees, Hay, 1310-
  2. DeLorean, John, 1920-1983
  3. Mephistopheles
Titles
  1. Gone to hell in a handcart : transportation in the Middle Ages going to
     neck and back
  2. To neck and back
  3. Hot and heavy series ; no. 3


For FULL screens in sequence, press "NEXT" or "PREVIOUS" screen
For HOLDINGS of the item, press "BIB/HOLD"
For BASIC display of the item, type "ba", then press "ENTER"
To go to the SUMMARY, type "su", then press "ENTER"
----------------------------------------------------------------------------
```

4. Tagged display.

As noted earlier, the public versions of the bibliographic records are derived from the versions of those records that contain the MARC tags. In BIS-1, these records will be formatted in a manner similar to an OCLC record.

Example 4c: Tagged Display

```
---------------------------------------------------------------------------
me Dubb, Beelzah  (retrieved 134 items)

en 3 of 134                    TAGGED DISPLAY   Screen  1 of  2 for this item

LC: 1234567     New  Rec Stat: c   Entrd: 050572   Used: 063080
   Type: c   Bib lvl: m   Lang: eng   Source: d   Accomp mat:
   Repr:     Enc lvl: I   Ctry: is    Dat tp: s   MEBE: 1
             Mod rec:     Comp: cb    Format: n   Prts: n
   Desc: a   Int lvl:     Litx: n     Dates: 1983,
.   040    NDD #c NDD
2   045    s6s7
3   048 0  #b vn #a ka01
4   100 10 Bubb, Beelzah, #d 1321-
5   245 10 Gone to hell in a handcart #h printed music : #b transportation in
he Middle Ages going to heck and back / #c Beelzah (Hubba) Bubb, with the
sistance of Hay Dees.
6   260 0  Gaza Strippe : #b Waynamanger Press, #c 1983.
7   300    1 vocal score : #b ill. (some col.) ; #c 88 cm.
8   490 1  Burning series ; #v no. 3
9   500    Includes introduction by John DeLorean.
0   650  0 Hell #x Maps
    650  0 Transportation #z Hell.
2   700 10 Dees, Hay, #d 1310-.
3   700 10 DeLorean, John, #d 1920-
---------------------------------------------------------------------------
```


BEST COPY AVAILABLE

B. Holdings Displays

There are two types of holdings displays, one primarily for staff use (the "technical" display) that shows the tags, indicators and subfield codes, and the other for public use (the "holdings" display). These holdings records are separate from the bibliographic records, but carry the same system number; the "technical" holdings record numbers are distinguished by the prefix "H" (the public versions do not include the system number). While some of the data appears in both the bibliographic and the holdings records, it is maintained and edited in only one of the two.

The TRLN holdings records are unlike the holdings information in OCLC, where there is only a single field (the Ø49 field) to show this information. The limitation of having only a single field, and the needs of an integrated system to carry other types of data, required the adoption of a separate record.

1. Technical Holdings Record Display.

The public holdings record display is derived from the data that is contained in the technical display, and therefore it is described here first. The purpose of the holdings record is to maintain holdings data, e.g., to add copies, show withdrawn items, etc. Example 6, which shows a "technical" record, appears after this description.

While some of the data appears in both the bibliographic and the holdings record, it is maintained and edited in only one of the two. For example, the title, although shown in the technical holdings, may be changed only in the bibliographic record.

The technical record is composed of multiple fields, with the layout being similar to MARC records (note that the tags are all shown in the left column).

The technical record is broken down into two main areas:

a. The "header", which appears below the label at the top of the screen, contains brief identifying information about the item. Within the header, the main entry and title appear first, with one line allowed for each. Then follows some coded data, but not all the data that appears in the tagged bibliographic record.

   The call number will appear at the top of the record if it is the same for all locations. If there are any locations that vary, then the call number always appears with each separate location.

b. The "block" includes the holdings enumeration.

   1. The LOC fields will contain the code for the holding library (e.g., NOCC = Wilson Library). The field may also include: ≠b for sublocation information in noncoded form; ≠f for the format for shelving purposes; and ≠s, showing oversize information.

      If any of these special subfield codes are filled in the holdings record, the contents of these subfields will be displayed as part of the full public holdings record.

2. Piece enumeration fields (COP, VOL, PRT, etc.)

   a. There are three indicator positions. The first two will contain format codes. These codes will be used to derive the format code in the header, and will be applied when compiling automated statistics. Automated statistics will not be a part of BIS-1. The third code shows the status of the item.
   b. The piece enumeration fields also carry subfields for linking volumes to other records. These may be used for such situations as "bound withs" or sets-within-series (although such indications are not required in BIS-1).
   c. The piece enumeration itself may be condensed in the record (e.g., to show a range of copies 1-4), or separately enumerated in certain cases (e.g., copy 1, 2, 3, 4).
   d. Pieces that have machine-readable piece identification numbers for circulation purposes (e.g., "bar code numbers") must be separately enumerated to show which piece identification number goes with which physical piece in the holdings record. In the technical display, piece identification numbers are given in brackets immediately after the piece that they identify.

3. Piece specific notes. Notes that apply only to specific copies, but not to the work as a whole, are placed in the holdings record and not in the bibliographic record. These notes appear in the holdings record below the piece that they describe.

4. Notice that there are no prompts at the bottom of these displays because this display is intended for staff use only.

5. Further information about the structure of the holdings records may be found in the TRLN document H1: General Structure of the Holdings Records (revised).

Example 6: Technical Holdings Display

```
---------------------------------------------------------------------------
me BUOD, BEELZAN  (retrieved 134 items)

em 3 of 134                    TECHNICAL DISPLAY  Screen  1 of  2 for this item

D: 1234567    Bib lvl: m  Format: ep  Entrd: 830113  Used: 830113  Rec stat:
0: BUOD, BEELZAN, 1321-
5: Gone to hell in a handcart [printed music] : transportation in the Midd...
11#: nul
F: VOL=v. #a PRT=pt.

 1 LOC     NDDP
 2 092     210.5551212 #b B789, G123, 1983
 3 COP     1
 4 500     This copy has been signed by the author.
 5 500     In bright red paper wrapper, as issued.
 6 VOL     1 [123456789]
 7 VOL     2 [234567890]
 8 PRT     1 [5678895434] 2 [7564883948]
 9 VOL     3 [859036769] 4 [527898799] 5 [584095889]
10 LOC     XXEK #s E
11 092     210.5551212 #b B789, G123, 1983
12 COP     1
13 VOL     1 [954626786]
14 VOL     2 [957826474]
---------------------------------------------------------------------------
```

2. Public Holdings Record Display.

In most cases, public services needs will be more than adequately served by the public holdings display. This display is, for the most part, a translation of the "technical" holdings display from "Biblish" to "English." Terms are provided to explain the codes (for example the format code for "videocassette" in the "technical" display will be translated into the English language equivalent). In addition, information that generally would not be useful to the general (such as piece identification numbers, records of withdrawn items, etc.) will not be displayed.

Example 7 is of a public holdings display is given after this description.

a. The first line of the display shows the type of display as well as the name of the institution. Because of distributed access, and because a user will eventually be able to search the files of more than one institution, the user may need to be reminded of which file is being displayed, particularly when local holdings are involved.

b. The name and title are shown here, as in the technical holdings record.

c. The "type of material" is a term or terms that give information about the bibliographic level as well as the physical format. "Printed" is implied in this display because this is still true for the majority of materials. For printed monographs, "Books" will display. Serials will be labelled as such, and will be added to physical formats as necessary, e.g., "Microfiche (serial)". If some of the physical pieces are in a different format, the term "mixed media" will appear in this area of the record.

d. Location. The "spelled out" versions of the library location (not just the abbreviations) can be shown here, as well as sublocation, format, and oversize information. This is a standard order and location for this information for all institutions in TRLN. The actual terms displayed may vary from institution to institution (e.g., one institution may choose to use the term "folio" while another may choose to use the term "oversize").

e. Call number. This will be repeated below each location, even if the call number is the same for all locations.

f. The holdings will display as much information as is available in the "technical" record, except for certain non-public notes and information about volumes not held. While monographs may have full piece enumeration, serials records at the present time can show only location information because that will be all the information available initially from the records converted from the OCLC holdings format. This means that for serials only the location (and sublocation, etc.) information and the copy number will display.

Example 7: Public holdings display

```
Name dubb, beelzan  (retrieved 134 items)

                HOLDINGS INFORMATION - DUKE UNIVERSITY LIBRARIES
Item 3 of 134                                    Screen  1 of  3 for this item

Name : dubb, beelzan, 1321-
Title: Gone to hell in a handcart [printed music] : transportation in the ...
Type of material: printed music

Location: Perkins
Call no.: 210.5551212 B769 G123 1983
Holdings: copy 1
            Note: This copy has been signed by the author.
            Note: In bright red paper wrapper, as issued.
            v. 1
            v. 2
              pt. 1-2
            v. 3-5



For HOLDINGS screens in sequence, press "NEXT" or "PREVIOUS" screen
To go to the bibliographic display, press "BIB/HOLD"
```

4. Search Commands and System Features

A. General Comments

1. The command syntax (i.e., the language of the commands and the punctuation used within commands) has been designed to be unique. This means that each command is used consistently throughout the system to avoid confusion in having the command mean different things in different contexts, and to permit better system performance.

2. Commands may have synonyms. This permits flexibility for the user who may not know whether the system uses the term "name" or "author". In BIS-1, both terms would be recognized by the system.

3. There are two types of commands: those that are followed by a text (such as a name search command, which is followed by the name of the author), and commands that stand alone and ask the system to take action (e.g., "start"). When a command is to be followed by text, the command optionally may be followed either by a blank character, an equal sign, a dash or a colon. All commands must be followed by depression of the "enter" (i.e., "send") key.

4. The system will employ simple right phrase truncation only, i.e., the system will assume that search arguments are truncated from the end of the last term of the search argument. An explicit symbol (e.g., an exclamation point [!]) may be used to show the system where the search argument should end. For example:

   1. title: history of the american indian! [i.e., with the exclamation mark]
      WOULD RETRIEVE: only titles that exactly matched this search argument

   2. title: history of the american indian [i.e., without the exclamation mark]
      WOULD RETRIEVE: all titles that exactly matched this search, plus titles that extended beyond this title, e.g., History of the American Indian from 1600-1800.

   Either full words, or separate characters may be omitted, e.g., the second example would also retrieve "History of the American Indians."

   While the filing order would allow the user to omit all titles after the Indian, it would be better to input the exclamation mark to prevent the system from wasting response time to bring up entries that clearly are not desired.

   For other types of searches such as series searches, the system will allow the user to search the entire series statement, straight through the volume number, or to truncate out the volume number or any portion (from the right back to the left) of the search argument.

Note that commands as well as search arguments will be interpreted as being truncated. For example, to request the "basic" record the user may input "basic" or "ba". This is to give the user added flexibility and to save typing time. In no case, however, may a command be truncated to fewer than two characters. If the user tries to truncate a command to fewer than the acceptable number of characters, the system will generate a message to request a fuller form of the command.

5. In some cases it will be possible to have a "function key" that will allow the user simply to press a button to accomplish a function rather than having to type in a specific command and then hit the "enter" key. Which functions will be accomplished through function keys and which ones will require commands is not completely not known at this time. There are a limited number of function keys available, and they will not be completely allocated until the command structure and editing facilities are final.

6. In BIS-1 only, the maximum size of a retrieval set is 4000 records. Because the full name or title can be input as a search argument, and given the relatively small size of the present database, it is unlikely that this limit will be reached as frequently as the OCLC limit is reached with its truncated search strategy.

7. It will be possible to "stack" commands, i.e., ask the system to do multiple things within a single command. In such cases, however, the system must recognize these requests as somehow being logically connected.

8. Search arguments (the entry that the user wishes to search under) may be input in upper and lowercase, all upper case, or all lowercase. Punctuation within search arguments (e.g., periods or commas) is also optional. The search argument, however, must be input in "catalog" order, i.e., surnames before forenames, etc.

9. It is expected that the user will omit initial articles from a title search. If the initial article is input, the system will search the title with the initial article regarded as a word. For initial articles in English, French, German and Spanish, however, if the initial article was used in the search argument, the system will retrieve any records responding to the search, and give a reminder message such as "[The] may be an article. If you don't find your item, re-search without the [The]".

B. Starting Up. A variety of synonymous commands will be available to begin a session at the terminal, including "start" and entry of an individual's own authorization number. Terminals in public areas will generally be logged on automatically, so this feature generally will not be necessary.

C. Session versus Single Search Parameters. For some functions it will be possible to tell the system that that for all searches conducted, the searches should be performed in a special way. For example, a technical services user may want to search only holdings records. It will be possible to set the system to have "session" parameters so that all searches conducted from that time are searched within these constraints until the user changes them. Within a "session" parameter, the user may also perform a single search with different parameters, e.g., to tell the system that for the next search, search bibliographic records only. If the user does not explicitly set the session parameters, they will be set to default values such as to display bibliographic records at the 'basic' level.

D. System Features. Rather than give the specific wording of the commands that will be recognized by the system, enumerated here are the general features and types of commands that will be employed:

1. Change record type and display level. This will permit the user to go, through the use of a single command, through the bibliographic levels of summary, basic and full, and to go back-and-forth from bibliographic to holdings records. The specific commands for each of the display levels will be unique so it will be possible to request both the type of record (e.g., bibliographic) and the display level (e.g., basic) through the use of a single command.

   In addition, there will be a function key to go back-and-forth between bibliographic and holdings records; depression of the key when a bibliographic record is displayed will bring up the holdings record, and vice-versa. If this key is used, there are "default" coordinate displays, e.g., a "basic" bibliographic record brings up the public "holdings" display.

2. As explained earlier it will be possible to see the actual name and title indexes in addition to calling up bibliographic and holdings records. This is seen as an advantage for searching when the user is unsure of the exact name or title, but has a rough idea of the the name or title. The system will allow the user to narrow the search by checking the indexes first, and then directly retrieve the records for that entry or those entries. This is particularly advantageous because it will be faster to search indexes than to search and retrieve records. It will also speed up the process if the search for records is narrower because there will be fewer records that will have to be retrieved.

   Commands are provided to go easily back-and-forth between records and indexes.

3. A simple command, and a function key, will be provided to go to the next screen and back to the previous screen. This would allow users to "page" through a long retrieval set. It will also be possible to skip over records by requesting a specific item number (e.g., going from item number 1 to item number 100 of a retrieval set).

4. Providing the funds are available to purchase the necessary equipment, it would be possible to make printouts at the terminal.

5. Help screens will be available for the user who has arrived someplace and can't seem to get out. The user will be able to return from the "help" screen to the point in the search process at which the the "help" was requested.

6. Separate commands are provided to enter the different indexes, i.e., all names; personal names only; corporate names only; all titles; title page titles only; uniform titles only; and series/set titles only. In addition there are commands to request records by system number, LC card number, and international standard numbers.

E. Not Available. Some of the features not available in BIS-1, but which likely will be a part of BIS-2 are listed below. Note that this list is illustrative and is not intended to be exhaustive.

1. If all three institutions continue to share the present computer, it may be possible to call up all three library files through the system. This is not as much of an advantage as it seems. Because of inadequate storage space and processor capabilities on the present system, at best each library would have its files available every other week. It is possible that the full files would only be available via the OCLC record number. In addition, it would be necessary to log-off one file, then log onto the other library's file, and then re-search the item.

   For each library that has its own computer, it will not be possible to search the other libraries' files in BIS-1, however, the full files definitely would be available through the various access points explained above for BIS-1. Full system linkage among campuses, however, will be possible in BIS-2, and it will be easy to transfer to and from different institution's files in BIS-2.

2. Set session (or single search) parameters for: location (below the institution level); language; and possibly for other "fixed field" codes (such as date or TRLN format code). Setting single search parameters for a wide variety of "fixed field" codes will definitely be possible.

3. Save or recall the current set of search results.

4. Delete a saved set of search results.

5. Combine two or more saved retrieval sets.

6. Go back to the most recent retrieval set.

7. Request or cancel an offline print, and specify sort orders for offline prints.

8. Search the indexes and present the authority record for the user to examine before retrieving bibliographic records.

9. Expand or limit search (through techniques such as Boolean operators, complex truncation, proximity operators, relational operators, etc.)

10. Manipulation of search results.

11. Error reporting mechanisms.

12. System news reports. This will be available on a limited basis only in BIS-1, primarily through logon messages, and broadcast messages (e.g., "The system will go down in 5 minutes").

THE PENNSYLVANIA STATE UNIVERSITY LIBRARY INFORMATION ACCESS SYSTEM

I. What we are achieving

Since 1975, the Pennsylvania State University Libraries have been developing a sophisticated, computerized library information system (Appendix A). Labor-intensive manual procedures supporting the acquisitions, cataloging, accounting, and circulation and inventory control systems are being replaced by more efficient and effective automated systems which will improve our quality.

Information about library collections is being added to a database which can be searched through terminals, thus eliminating dependence upon the remote, fixed-in-place, inflexible card catalog.

The Library Information Access System (LIAS) at the University has several unique features which distinguish it from similar efforts at other universities.

a. It is a high quality comprehensive system that will allow students and faculty to secure information about the Libraries' collections and then to verify through the same terminal the availability of volumes needed, e.g., is the book or journal on the shelves, on reserve, being processed, on order, or checked out to someone else? The user will be able to direct the computer to notify him of the receipt of books and of their availability — a boon to researchers and students.

b. It is to be a sophisticated bibliographic access system allowing natural language, keyword, and Boolean searching of the database, while providing a level of control of bibliographic information that is not possible with card files.

c. It provides a browsing capacity on the terminals, such as one can do on bookshelves, and tells one not only where the material is at Penn State (it may be at Ogontz, University Park, DuBois or any or all of our dispersed locations) but can also access the collections of other universities in the country with which we are associated in a computerized network.

d. It is a retrospective system which will include information about the entire library collection and all its formats, not just current materials, but all we have ever acquired, and not just books and journals, but ultimately government publications, federal and state documents, manuscripts, microforms, phono-discs, etc.

e. It is an interactive system, providing immediate information "online" about all collections and all transactions, not just a batching of information for "offline" consultation or "deferred loading" into an online catalog.

f. It is also a processing system which allows Penn State to take advantage of the support provided by national library computer networks without creating a costly and onerous dependency on such organizations over which we have no control.

g. It is cost effective as indicated by the fact that in the past five years we have abolished 48 full-time staff positions, and created our database at a cost of less than $1.00 per record compared with, for example, the University of California's partial system in which the costs were reported as $1.76 per record.

II. What we are doing and planning

This basic automation system is currently operating at the University Park campus libraries. Instruction and research at Penn State will benefit immeasurably as access to these information resources and services is made available throughout the entire University system.

One of the University's major needs has been and continues to be the expansion, extension, and completion of this system if the teaching and research needs of our entire student body and faculty are to be met. Therefore, this system is undergoing an expansion.

-- The addition of computer and communication equipment to support 160 concurrent users and to provide terminal access from more than 240 different locations will be completed the Summer of 1983 (Appendix C and D)

    This will permit extension of LIAS to the faculty, students and staff at University Park, the King of Prussia Graduate Center, Behrend College and the 17 Commonwealth Campuses (Appendix E). Additional funding providing for the inclusion of the holdings of the Hershey Medical Center and Capitol Campuses in Middletown, and the resolution of some administrative issues will permit inclusion of these units of the University in the system. Before long there will be access available via telephone and computer terminals not only from the libraries "out there," but from offices, laboratories, and perhaps even dormitories and private homes at some future date.

As a result of the impact this system is having on the university-wide community, plans are being made to support future developments (Appendix B). These plans, as noted in skeleton form, are arranged in prioritized order according to Penn State's current thinking. These events are not dated due to current efforts to expand staffing support. Changes in staffing and elsewhere will be completed by July 1983 permitting us to fix dates to our future development efforts. Two activities of major importance to Penn State are:

-- The completed system could also function as an access-bridge from any LIAS terminal located at all locations to all those bibliographic databases commercially available through Lockheed's DIALOG Information Services, Inc., Bibliographic Retrieval Services, Inc., System Development Corporation's SDC Search Service, and others. This will be done through computer software activating an auto dial facility and transforming the LIAS terminal into a commercial database searching terminal.

-- To facilitate the addition of Penn State information resources not held by the Libraries and to provide processing support for such collections, the Libraries are investigating the possibility of establishing a "contract service" unit. This unit could contract with other organizations to perform processing support or facilitate dispersed processing for those who want to do it themselves.

At Penn State, this could incorporate resources in Audio-Visual Services, the Computer Center, and various research units into an integrated University-wide database and encourage fuller awareness and utilization of available materials.

III. Is LIAS for sale?

Penn State is exploring the possibility of establishing an auxiliary enterprise with objectives of extending the benefits of the Penn State computerized library system to other interested organizations while maintaining as its primary objective the support of the Penn State Libraries. This auxiliary enterprise could be responsible for:

1. Operation and Maintenance of the LIAS system.

2. Future hardware and software development of LIAS.

3. Setting-up a "contract service" unit.

   This unit would subcontract to perform processing services for other organizations. This services would be divided into "input", "output" and "consulting" support. The three primary input services would be for retrospective conversion, cataloging, and reclass. This work can be done either "on-site" -- at the organization's facilities by "contract service" personnel -- or "off-site" -- at "contract service" home location. Provided output services would focus on the production of page-form catalogs, e.g., COM, book, special bibliographies, etc. Consulting services would provide special tailored support, e.g., documentation, training, consulting, etc., to areas which desire their data to become an integral part of an institution or network bibliographic database and which wish to retain coordination, control and management responsibility for the day-to-day work.

4. Setting-up a "network service" unit.

   This unit could sell and distribute the Penn State System to other interested libraries and library networks.

February, 1983

SUMMARY

The Pennsylvania State University's computerized system has a number of features, many of them unique, which indicate that it is a front runner in utilizing contemporary technology to tap the ever-burgeoning information resources of the nation, to reduce personnel costs, to access resources in other libraries and databases in the private sector, and to enhance the quality of teaching and research.

Our efforts for Penn State, when completed, would:

- link 21 different campuses into a single, integrated, on-line computerized bibliographic unit. To our knowledge, there is no other such effort of this scale and sophistication elsewhere;

- include not only books and journals but also music, theses, maps, machine readable data files, analytics, archives, microforms, and government publications;

- provide at all locations computerized access on public, "user friendly" terminals, to the increasing number of commercially produced databases produced by the private sector in addition to the library's database;

- include all internal library functions, system-wide, such as accounting, acquisitions, cataloging, lending services, inter-library borrowing and lending, and reference services to our library patrons as well as to other libraries, businesses, and corporations which use our resources;

- be done at a lower cost than those of other institutions or organizations which are attempting to do, piecemeal, what we are doing in a totally integrated system;

- provide access at all our locations to such rich repositories as the libraries of Michigan, California, Minnesota, Iowa, Yale, Princeton, Rutgers, Columbia, New York University, and many others through computer gateways to national utilities of which we are a member;

- and, finally, be based on software already developed by the University Libraries thus obviating the need to contract and pay for having such work done by outside "unknown" organizations.

The Pennsylvania State University Libraries
LIAS -- Library Information Access System

Status Report -- Development thru 1983

	[BRD] Acq.	Access	[BSD] Ctlng.	Inventory Control	RECON	Computer
1975						Xerox Sigma 9 (32 users)
1977					Books/[UP-LC]	
1978						Xerox 560 (50 users)
1979				ICP/Circ		
1980					Thesis	Level 66 DPS/B (80 users)
1981		COM + Staff Access	BCS {Books} {Thesis} {Maps}		Books/[CCL] Music	
1982		RLIN Bridge	{Serials} {Music}	ICP/BCS	Serials Films	
1983	FAXON Port Con.	Public MARC Tape Generator	{Films}		Dewey	DPS 8/50C Dual Processor (160 users)

Key:
{ as specified } = MARC Format Support

January 1983

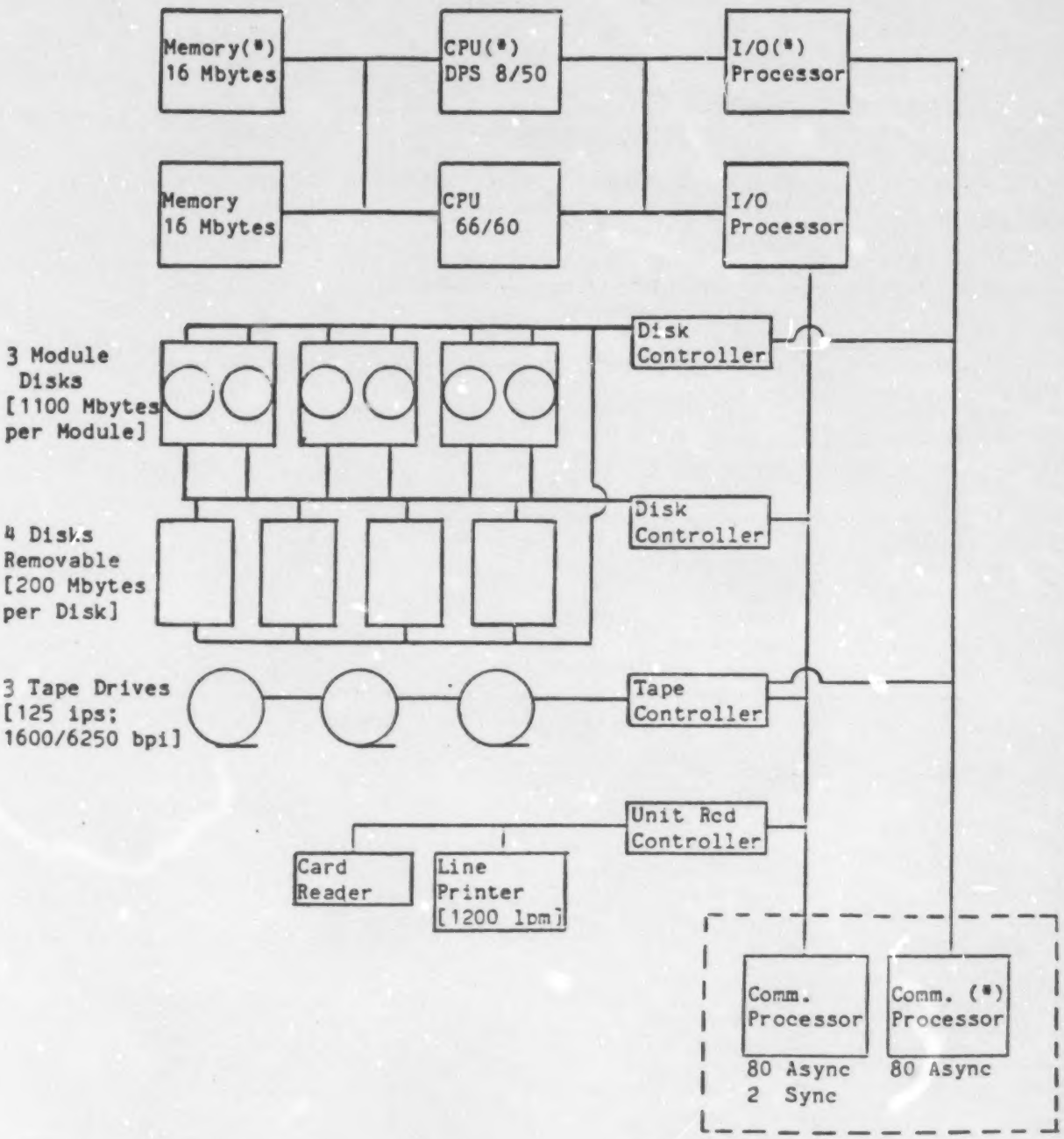
Planning Document | LIAS | Future Developments

	[BRD] Acq.	Access	[BSD] Ctlng.	Inventory Control	RECON	Computer	"LIONS" Library Online Systems/Services
[1]	FAXON Gateway	X-Refs	Entry Maintenance	ICP/XBCS		Word Prcng Elec. Mail	CONTRACT SERVICES
[2]	Acq. + Fnd-Acct	Course Reserve Inquiry	{MRDF}	Course Reserve Processing		Micro/PC Workstation	NETWORK SERVICES [Remote FEP(s)] [or ICP(s)]
[3]		Comm. DB Gateways	Authority Control		NAF/SAF		
[4]			Documents		Documents		NETWORK SERVICES [Netwrkd Proc(s)]
[5]	Serials Bindery	Search Enhancements					
[6]			{Analytics} Micro/Anals		Analytics Microforms		NETWORK SERVICES [Dist. Proc(s)]
[7]		RCA keyword, nat. lang.					
[8]			{Archives} {Maps}		Archives Maps		NETWORK SERVICES [Lib. Serv. Net(s)]
[9]		Nat. Lib. Gateways					

Key:
{ as specified } = MARC Format Support

Library Automation at The Pennsylvania State University

LIAS -- Hardware Diagram

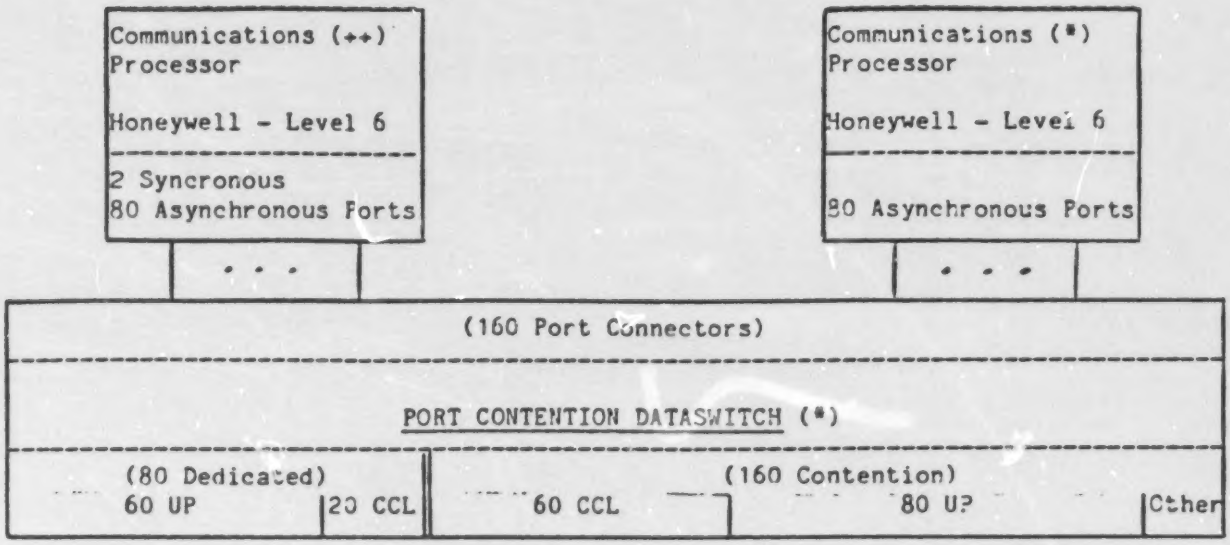


Non-asterisked items = current computer configuration
Asterisked (*) items = future computer growth

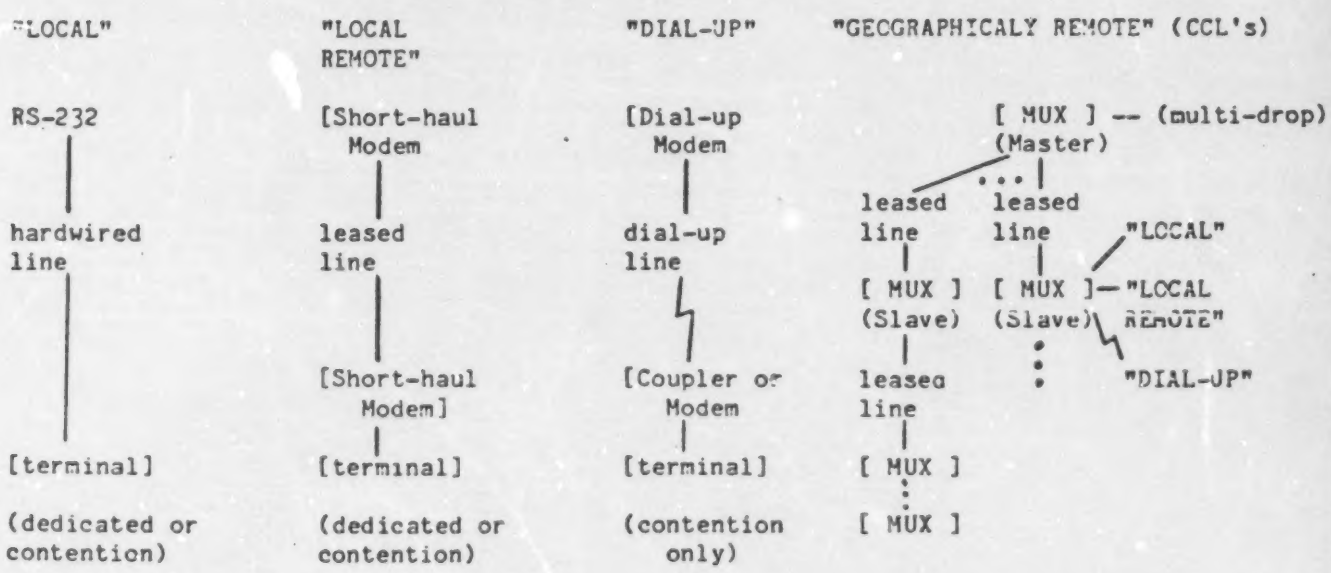
These future growth items are required to provide online bibliographic access to the faculty, staff and studentbody at the University Park and the other geographically dispersed Penn State campuses.

Library Automation at The Pennsylvania State University

LIAS -- Communications Network

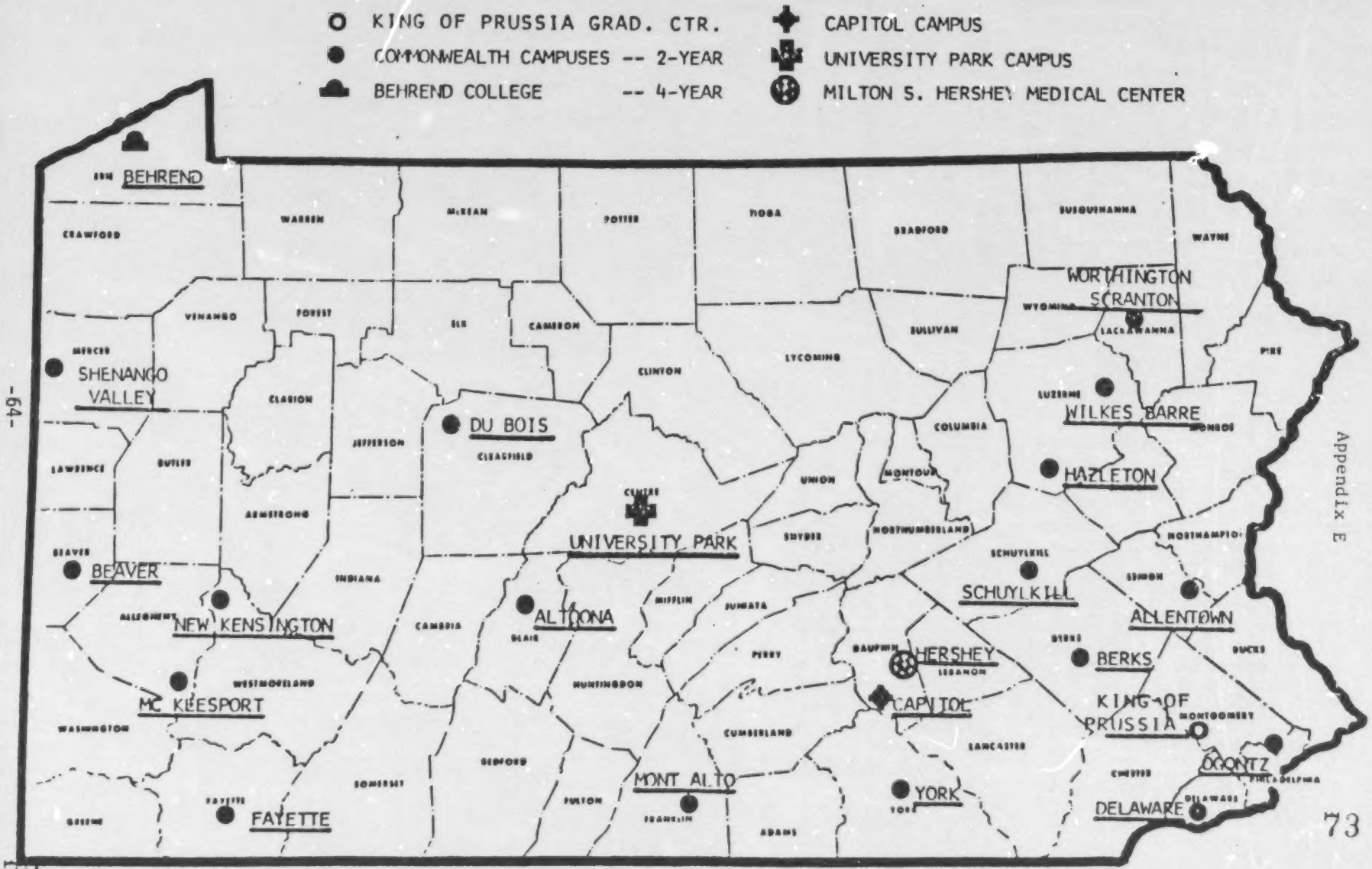


** Communication Options **



(*) item = future computer growth
(++) Current Configuration:
All 80 terminals are connected to dedicated computer ports as follows:
[23 - Acquisitions and Cataloging; 32 - Public Services (20 - Pattee, 2 ea. @ Engineering, E&MS, Math, Architecture, and Pollock libraries; 21 - Computer Services/Training/etc.; 1 - Administration; and 3 - Branch Campuses thru Develcon Dataswitch at Computation Center]

CAMPUSES OF THE PENNSYLVANIA STATE UNIVERSITY



BEST COPY AVAILABLE

INTEGRATING AUTHORITY CONTROL IN AN ONLINE CATALOG

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Abstract. Machine-readable data bases of bibliographic records provide the substance for online catalogs. In order for a data base to be a catalog, however, it must have a logical organization which collocates related items. Authority control imposes this organization. The Ohio State University Libraries began use of LCS (Library Control System) as its official catalog in Summer 1982. LCS achieves authority control through a headings file, which: 1) serves as an authority file by displaying the verified form of headings used in the catalog and by linking related headings; and 2) organizes and provides access to the data base by serving as an index to the bibliographic records. This system continues the organizational philosophy of the card catalog, enhancing it with the advantages of automation. The machine links between headings files and bibliographic records facilitates change and modification of the headings. This new application of authority control in LCS illustrates the theory of authority control in online catalogs.

Keywords. Authority control. Online catalog. Library automation.

THEORY

Machine-readable data bases of bibliographic records provide the substance for online catalogs. The data bases themselves, however, are not catalogs because they do not fulfill the functions of a catalog as formulated by Cutter (1) and reaffirmed in the Paris Principles (2). These functions are to serve as 1) a finding tool for individual items and 2) a gathering tool for items which share common characteristics. The first function can be satisfied by access to the machine-readable records, but the collocating function of the catalog depends on a logical organization of the discrete items.

The organization of the catalog occurs with the consistent use of headings - the access points (e.g., personal names, subject terms, series, etc.) of bibliographic records - and a structure of relationships between and among the headings. This consistency and structure are the catalog's strongest points (3). The headings which have been used are recorded in an authority file, which documents forms of headings, verified status, relationships between verified headings and variant forms of these headings ("see" references), and relationships between and among verified headings ("see also" references).

Authority control can be described as a three-part process: 1) collecting, relating, and maintaining authority data, 2) verifying proposed headings against that authority, and 3) using the established authorized headings as access points (4).

Traditionally, authority control has been carried out through the maintenance of an authority file, against which the headings to be used in the catalog are compared. The connection between the card catalog and the authority file is intellectual. A trained individual determines which headings are new and which are variant forms of previously established

headings.

This approach has continued in some automated cataloging systems, such as OCLC. Despite the sharing of cataloging through data bases, each library must perform the manual matching necessary to turn those machine produced cards into a catalog (5). The Library of Congress name authority file, which is available online from OCLC, is a separate file which serves only as a resource, the successful use of which is dependent on human interpretation.

When authority files are machine-readable, the systematic comparison necessary for authority control also can be automated. Computers offer a new capability in authority control by providing an actual link between and among machine-readable files. Linked headings are stored only once in the authority file, and a unique number identifying this location is stored in the bibliographic record. The relationships ("see" and "see also" references) among authority records also can be automatically linked. This prevents the inadvertant use of unauthorized headings and the creation of blind references (i.e., those which have no associated bibliographic records).

Three levels of links can be identified in relationships between machine-readable authority and bibliographic files: 1) the unlinked system, 2) the integrated linked system, and 3) the non-integrated linked system (6). The unlinked system is the traditional approach as used by OCLC. (That is, there are two separate data bases with no links). Both the integrated and non-integrated linked systems specify relationships between bibliographic records and headings. These relationships constitute the links. The integrated linked system controls the entry of new bibliographic records into the data base. Since only records with established headings are allowed, new headings must be authorized online before the

record at issue is added to the data base. The integrated linked system is possible only in cataloging systems that provide online authority control at the time the catalog record is created. This option is not available for an online catalog if the library uses an external, shared cataloging system for record preparation. A non-integrated linked system is the solution for these online catalogs. The non-integrated linked system provides machine validation after cataloging is completed by matching headings from new cataloging to headings existing in the automated catalog. A non-integrated linked system can provide catalog management similar to the integrated linked system.

APPLICATION

In December 1981, The Ohio State University Libraries created a headings file to provide its Library Control System (LCS) with non-integrated linked authority control. This software upgrade provided the organization which would allow LCS to become the official catalog of the University Libraries, effectively replacing the card catalog. Prior to that time, LCS served primarily as a finding tool for known items. It did not provide for the collocating function with associated references for authors, although it did provide subject access, without references, for a portion of the collection (7).

The new headings file was created by extracting author, subject, uniform title, and series headings from approximately 520,000 MARC compatible records created between January 1974 and November 1981 by The Ohio State University Libraries and the State Library of Ohio (8) using OCLC. Headings also were selected from the author field in the 1.3 million short records present on LCS.

The headings file on LCS gathers similar material by serving as an

index to the bibliographic records. When a heading (name, subject, uniform title, or series) is searched, the response displays: that heading in its alphabetical sequence, the number of bibliographic records associated with that heading, as well as "see" references for variant forms of headings. A note refers users to "see also" references.

The LCS headings file functions as an authority file in that each heading record includes the display (authorized) form of the heading, indicates the type of heading (i.e., author, subject, uniform title, or series), specifies the verified status of the heading, gives the series decision for series headings, and records the relationships among heading records. In addition, each heading record includes the unique title numbers of the LCS bibliographic records from which the heading was extracted. Each heading record is assigned a number which replaces the text of the heading in the bibliographic records. The heading record also includes the unique numbers of other heading records which are related. These numbers constitute the links.

The second step of authority control, verifying headings against the authority, takes place through machine validation. A sort form facilitates heading validation by machine. This sort form is created by deleting all punctuation and duplicate blanks, and converting all lower case letters to upper case. When the headings file was produced, the heading records were sequenced using the sort form, and duplicate heading records were combined. The elimination of duplicate heading records reduced the number of headings from the 2.9 million extracted from the bibliographic records to 1.3 billion unique headings. (The number of unique headings will be reduced further when the headings are reviewed and variant forms are eliminated.) All headings were originally assigned an unverified status which is changed to verified as the headings are reviewed by library staff.

This heading validation occurs as new bibliographic records are added to LCS during the weekly maintenance of the data base. A sort form is created for each heading and merged into the headings file. If there is a match with a previously established heading, the number of associated bibliographic records is incremented by one, the title number of the new bibliographic record is added to the heading record, and the heading number replaces the heading text in the bibliographic record. If the heading is unverified, i.e., does not match an existing verified heading, it is reported for manual review, while a new heading record with links is created. If the new heading matches a "see" reference, the bibliographic record is automatically linked to the correct heading. Using weekly reports, library staff establish the correct form of new headings and make any necessary references. They also identify which headings may be variations of established headings and reassign any associated bibliographic records to the correct heading record.

All headings added to LCS are either already established and verified or are reviewed. This provides the same control as the integrated linked system, but the integration takes place after, rather than during, the preparation of the bibliographic record.

SUMMARY

Authority control is a combination of intellectual and record-keeping activities. At The Ohio State University Libraries, the record-keeping tasks - collecting and maintaining authority data and verifying proposed headings against that authority - are being automated. The establishment and use of authorized forms, however, is an intellectual activity which requires human review and action. The online authority file records decisions but cannot make those decisions.

Authority files are an important resource to be consulted when creating new bibliographic records. The headings file on LCS is such a resource, but it is also more. The file organizes the machine-readable data base into a catalog by collocating related items via their common headings. At the same time, the file manages the catalog through the machine validation of headings and by providing the links between and among headings and bibliographic records. The links which make automated authority control possible also add a new dimension to authority control in online catalogs (9). That dimension is the capability to facilitate change. A heading can be changed and that change will then be reflected in all bibliographic records containing that heading. The functions of the catalog have been preserved in LCS at the same time that the inflexibility and unresponsiveness to change, which are the inherent weaknesses of the card catalog, have been overcome.

REFERENCES

(1) Cutter, Charles A. Rules for a Dictionary Catalog. 4th edition, Washington: USGPO, 1904.

(2) International Conference on Cataloguing Principles, Paris, 1961. Statement of Principles. Annotated ed. London: IFLA Committee on Cataloging, 1971.

(3) Horny, Karen L. "Online Catalogs: Coping with Choice." Journal of Academic Librarianship. 8(1): 14-19, March 1982.

(4) Schmierer, Helen F. "The Relationship of Authority Control to Library Catalogs." Illinois Libraries. 62(7): 599-603, Summer 1980.

(5) Ohmes, Frances; Jones, F. J. "The Other Half of Cataloging." Library Resources and Technical Services. 17(3): 320-329, Summer 1973.

(6) Mills, Gwen. "Relationship Between Authority and Bibliographic Files." (Presented at Authorities: Persons, Corporate Bodies and Series: a joint program of the Cataloging and Classification Section and Serials Section of RTSD and the Information Science and Automation Section of LITA at ALA Annual Conference, San Francisco, June 29, 1981).

(7) Miller, Susan L. "The Evolution of an Online Catalog," in New Horizons for Academic Libraries edited by Robert D. Stueart and Richard D. Johnson. New York: K. G. Saur, 1979. p. 193-204.

(8) Thorson, A. Robert; Davis, Phyllis B. "Borrowing Made Easy: Automated Resource Sharing in Ohio." Wilson Library Bulletin. 54(8): 502-504, April 1980.

(9) Malinconico, S. Michael. "Bibliographic Data Base Organization and Authority File Control." Wilson Library Bulletin. 54(1): 36-45, September 1979.

OSU Communication

Subject Terminals on LCS (2/22/83)

Date February 24, 1983

From Susan J. Logan

To File

The Ohio State University

	Total		BY AREA: Public Service Staff	Technical Service Staff	Programming	Non OSUL	Public Use	Regional
TELEX 476L	138		16	9	1	-	112	
TELEX 281B (slave)		31						
TI 700	47		34	9***	1		2	1
IBM 3101	5				1	2*	1	1
IBM 3102		2						
IBM 3277	1				1			
Microbee	1							1
Decwriter	3							3
AJ	2		1			1**		
Dial access	3		—	—	—	1	2	—
Terminals	200		51	18	4	4	117	6
Slave printers		33						

State Library of Ohio

IBM 3101	11
TI 700	2
Dial access	2
	15

* Terminal financed by College of Humanities. Has search capability only.
** Terminal owned and used by OCLC Library. Has charge capability.
*** Eight of these are to be replaced with TELEX 476L with TELEX 281B slave printer in next 1-6 months.

See reverse side for addressing
The Ohio State University
Form 700—Rev. 9 76 Stores 53610

AN ONLINE CATALOG FOR THE DARTMOUTH COLLEGE LIBRARY: THE EXPERIMENT CONTINUES...

by
Emily Gallup Fayen
Director of Library Automation

Introduction

Dartmouth College, founded in 1769, is a small liberal arts college located in northern New England. Although it is primarily an undergraduate school, it also has Business, Engineering, and Medical Schools and offers ten Ph.D. programs in various disciplines. Thus, it is a unique combination of small college and major university. Dartmouth has approximately 5000 students enrolled in these programs.

The Dartmouth College Library was established soon after the College was founded. It now encompasses a collection of somewhat more than 1.5 million volumes, 95,000 maps, over 800,000 microform items as well as manuscripts, audiovisuals, and other materials. The Library collection has doubled in size approximately every forty years since the founding of the College and every twenty years since the start of this century. By the 1970s, the library was actually a system of eight libraries. Baker Memorial Library, with its collection of materials in the social sciences and humanities is the central library. There are seven branch libraries holding more specialized collections in the Arts, Sciences, Medicine, Business, and Engineering.

In 1969 Dartmouth joined the Association of Research Libraries and a decade later became a member of the Research Libraries Group.

The Dartmouth Online Catalog Project

In 1978 the Librarian of the College appointed a Future of the Catalog Committee to investigate alternatives for maintaining the Library card catalog. At the time the Commitee was deliberating, the catalogs consisted of a Union Catalog, housed in Baker Memorial Library and containing cards for all materials in the system. In addition, there were card catalogs in each of the branch libraries showing each one's holdings. The alternatives considered were: 1) maintain the status quo; that is, continue the process of producing and filing catalog cards; 2) produce a COM catalog; and 3) produce an online catalog. Five-year cost estimates were made for each alternative. Projected costs to continue the card catalog or install an online catalog were comparable. The cost to install and maintain a COM catalog was slightly lower if annual cumulations were assumed and slightly higher if semi-annual or quarterly cumulations were assumed.

Based on these findings, the Committee recommended that the online catalog alternative be explored. Early in 1979, the Dartmouth Online Catalog Pilot Project was started. The objectives of the Pilot Project were:

- Investigate the feasibility of using Dartmouth's OCLC transaction tapes as a database for developing an online catalog for the Library.

- Develop a "user-cordial interface" that would enable any member of the Dartmouth community to access the Dartmouth Library database for the purpose of identifying, locating, and obtaining items of interest.

- Introduce the Dartmouth community to online searching of library materials. Elicit comments and suggestions which can be used in the continuing development of the user interface.

- Conduct controlled experiments to compare access using the current card catalog with the online approach.

- Assess the feasibility of including serials receipt control and online circulation control in an eventual integrated Dartmouth Library System.

- Monitor the costs of maintaining the status quo versus moving toward more computer support of library operations.

- Coordinate development with planning taking place nationally.

By this time, the Dartmouth College Library had already automated several internal functions including acquisitions,

interlibrary loan statistics, student fines, and library billing for photocopying and online searching. Development of an online circulation system was postponed because of the relatively small volume of circulation and the high cost. Subsequent cost projections showed, however, that development of an online catalog might result in some cost savings and would undoubtedly provide better access to the Libraries' collections for the Dartmouth community.

With these facts in mind and upon the recommendation of the Future of the Catalog Committee, the Library embarked on a long-range project to develop an online catalog. As a first step toward this goal, Dartmouth entered into an agreement with BRS in Latham, N.Y. BRS agreed to create a test online catalog database which they would mount on their large IBM-based system as a private data file (PDF). They also agreed to provide search services using the standard BRS software.

The test database was created using Dartmouth's monthly transaction tapes from OCLC (Online Computer Library Center), Inc. Dartmouth has been routinely cataloging all its new acquisitions through OCLC since 1972. The Library has also had a continuing retrospective conversion project quietly running in the background. This project has recently completed conversion of Dartmouth's entire acquisitions back to 1964. After joining the Research Libraries Group in 1979, the Library began to catalog most new materials through this system. Counting all

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sources, the Library now has machine-readable MARC format records for about 450,000 titles or roughly one half of its collection.

The test online catalog database was created by mapping the MARC tags into approximately 20 BRS paragraphs; e.g. Author, Title, Subject. Figure 1 illustrates a sample bibliographic record showing all the fields.

As part of its agreement with BRS, Dartmouth began work on a user cordial interface to the standard BRS search procedures. This interface is aimed at meeting the needs of the intelligent but naive user. The interface assumes that the user has some idea of the information needed, but has no special computer or library training.

```
LO  Music Phono-disc  M1834-S5-R46
ME  Maraire, Abraham Dumisani
TI  Mbira music from Rhodesia.  Phonodisc.
IM  (Seattle) University of Washington Press  (1972?)  UWP
    1001
CO  2 s.  12 in. 33 1/3 rpm. stereophonic.
SU  Folk-songs, Mashona.
NT  Songs, played and sung by Abraham Dumisani Maraire and
    others.  Program notes (12 p.) by Robert Kauffman and A.D.
    Maraire, including lyrics with English translation,
    inserted in slipcase.  Chemutengure.--Tondori.--Chinotamba
    mudziya mwacho.--Butsu mutandari.  Mutsa.--Zviro
    zvanhasi.--Zvine maninji zvendarota.--Donkwi.
NO  OCLC: 72736757.  LCCN: 72-760878
FF  YR: 1972.  Lang: sho.  PPUB: wau.
AN  00004810. 8110.
```

Figure 1: Sample record from the Dartmouth Online Catalog

There is no user's manual and no special bibliographic instruction or training sessions are planned. The design

assumption from the outset has been that the online catalog must be self-explanatory; that is, a new user should be able to walk up to any terminal on campus and get information about materials in the Libraries' collections in an extremely simple and straightforward manner. The user interface provides guidance for the user in the form of menu displays, prompts, online tutorials, diagnostic HELP messages and the like.

The BRS Software

The BRS software provides the capability of creating a fully inverted file for the entire bibliographic citation, thus making all parts of the record searchable. In addition, the BRS software provides for double posting certain portions of each record. Those parts of the record that are double posted, such as author names and subject terms, may be searched as phrases or as individual words.

Other features of the new BRS software that have had an impact on the design of the online catalog and the user interface are:

- Search terms may be truncated as desired to permit retrieving a root word with varying suffixes; e.g. COMPUT$ will retrieve COMPUTATION, COMPUTER, COMPUTERS, COMPUTER-ASSISTED, and so forth.

- The BRS software uses a stop word list; that is, a list of about 200 words which are not searchable such as A, AN, AND, BUT, etc. Because users cannot be expected to know which words are on the stop word list, the interface must compensate in some way.

- Boolean operators AND, OR, and NOT are supported as well as proximity indicators SAME, WITH, ADJacent, and NEAR.

- A search can be made over the entire bibliographic record or it can be to specific fields such as author, title, or subject.

- A variety of record display options and formats are available.

The Online Catalog Database

The primary purpose of the Dartmouth Online Catalog is to provide an avenue for locating information for both patrons and staff. It is not intended to be used for online cataloging or to perform other library maintenance activities. This premise has affected how the online catalog database was constructed and the types of access provided for it.

For example, although it may be desirable to search a library catalog by call number, ISBN, LC card number, and a host of other identifying information, the primary mode of access for most users is a keyword search of the entire record. Experience has

shown that for most users, this method is the simplest and most effective means of locating materials of interest. It overcomes many of the inherent problems with library subject headings, authorized forms of names, filing, and cross references.

An earlier survey performed at Dartmouth (1) showed that most users need only the call number, author, and title information from the catalog card. Preliminary results from the Online Patron Access Project sponsored by the Council on Library Resources (2), showed that over half of all users were looking for "books on a topic".

Experimental use of the online catalog at Dartmouth has shown that making the full record searchable, including notes and other descriptive fields, improves retrival because it adds access points. Fears that making the full record searchable would add significantly to the number of false retrievals have proven groundless. Rather, it is more often the case that relevant materials are retrieved that would have been missed by more traditional approaches.

The User Interface

The BRS software capabilities and the online catalog database structure provide an extremely powerful system for online retrieval. The difficulty comes in making such a system readily available to the typical library user who has little if any familiarity with computers and a vague notion of library rules and practices. The three main options are: 1) use an

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intermediary (i.e. a trained searcher) to conduct searches for the patron; 2) train users how to conduct their own online searches via bibliographic instruction sessions; or 3) develop a user interface that will enable users to conduct their own searches without assistance or training.

Dartmouth selected the third option as the most appropriate for our users. In addition, our goal is to make the online catalog rewarding and fun to use. The interface program serves as a buffer between the library user and the BRS search software. It is possible for patrons to use the online catalog without knowing what a Boolean operator is, what a "retrieved document set is", or even what the computer is actually looking for when it does a search.

The interface has undergone a number of revisions and changes as a result of experience with users of the online catalog (3). We anticipate that more changes are still to come as we continue to learn more about user needs. In addition, availability of an inexpensive intelligent terminal with full face display capabilities and a screen editor will make a radical change in the way the library user can interact with the online catalog. An entirely new user interface will be needed to take full advantage of these enhanced capabilities.

Implementation

The Dartmouth Online Catalog was developed on a DEC ~~PDP 11/70~~ VAX 11/780 computer under the UNIX operating system. The existing hardware configuration is intended to support up to 60 simultaneous users. Users may interrogate the online catalog from any one of over 300 terminals on campus. Some of these terminals are connected directly to the campus telecommunications network while others have dial-up access. Library users will have read-only access to the online catalog database; that is, only certain designated staff members will be able to modify the online catalog database.

At the outset, the online catalog will continue to be updated using OCLC and RLG monthly transaction tapes containing additions and modifications to the catalog. Eventually, an online linkup will be established so that records for new items may be added directly as the items are being processed.

Plans are also being made to convert all headings to AACR-II form and to add authority file cross reference information to the database. This feature will enable users to view any cross reference information or other usage guide information that is contained in the Library catalog. Whether user search statements will be automatically mapped into cross-referenced terminology remains an open question.

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References

1. Lindsay, E.J. "Familiarity, Use, and Importance of Information on Library Catalog Cards", Technical Report 9, Dartmouth College, September 25, 1978.

2. For full information, see the Final Report to be published by the Council on Library Resources, Fall 1982.

3. Fayen, E.G. and Cochran, M., "A New User Interface for the Dartmouth Online Catalog", in Proceedings of the National Online Meeting, New York, March 30-April 1, 1982.

THE USED AND THE USER: THE ONLINE CATALOG AT VIRGINIA TECH

Presented to the LITA Online Catalog Discussion Group,
ALA Midwinter Meeting, San Antonio, Texas, 10 January 1983

Marilyn Norstedt, Assistant Systems Librarian

In 1976, the library at Virginia Polytechnic Institute and State University brought up the first phase of a locally developed automated library system known as the Circulation and Finding System, or CFS. The immediate purpose of CFS was to run circulation and, at the same time, provide a rough-and-ready way of accessing some of the library's holdings. CFS-1, as this phase was known, was based on very short, unsatisfactory records, but it did effectively solve the pressing problems of handling a burgeoning circulation.

The university's Systems Development Office, which designed CFS, realized the system's limitations and began working with the librarians to implement a more useable online facility which could evolve into a totally integrated library system. Fixed-length fields for author and title were abandoned, and more meaningful records could be entered in a MARC format. During this phase - CFS-2 (sometimes called Son of CFS) - plans were made for the system to handle full MARC records retrieved from OCLC. When the OCLC transfer program was implemented, the system entered a third phase, known, not as the Grandson of CFS, or CFS Goes to Hawaii, but as VTLS - the Virginia Tech Library System - a name more appropriate to an integrated library system designated to handle all phases of processing and access.

To help Systems Development with planning the online catalog, a working group on access was formed. This group, composed of librarians from the technical services departments and the reference units, was responsible for deciding what fields should be searchable and how the information, when found, should be displayed.

From the beginning of its deliberations, which began in the CFS-1 period, the group operated with two basic rules: first, that the basis for the online catalog would be full MARC records; and, second, that the online catalog had to be at least as good as, and preferably better than, the card catalog.

Searching

Fairly early on, it was decided that searching should not require knowledge of search key codes. In other words, the user did not need to remember that the title key, as it was finally developed, was 3-2-1. Users can enter as much as they know, and we assume that they know the first seven letters of a subject or of an author's name or at least part of the title.

Users can search the online catalog by author, title, subject, and call number. They can, if they wish, search by OCLC number, ISSN, ISBN, LC card

number, the locally assigned bibliographic identification number, or the item number of a specific physical piece - but these numeric options are used primarily by library personnel. The basic user searches are explained on the GENERAL HELP SCREEN (Example 1) which can be accessed by typing in the command /HELP.

Entering the command A/HEMINGWAY will produce an AUTHOR MENU SCREEN as shown in the second example on your handout. The numbers immediately preceding the names indicate the number of records containing that particular name heading. The user can, of course, narrow the search by adding further words to the author's surname.

The user enters the desired line number (in this example, 10), and, if there is more than one record for the name, the system responds with an INTERMEDIATE AUTHOR MENU SCREEN, shown in Example 3. This screen provides brief and not particularly attractive information about the specific titles, but enough material to aid in the next selection.

At this point, selection by a patron or reference librarian diverges from selection by a technical services user. The patron, upon entering a line number, will see an ITEM SCREEN (Example 4), whereas the same selection by a user at a terminal logged on in "cataloging class" will produce a MARC SCREEN (Example 5). There is, of course, a good reason for the divergence: the patron and the reference librarians usually want to know if the book is available - information that is carried at the item level. The tech services personnel usually want to look at the bibliographic record.

At any point during the search, the user can enter a HELP command and receive information about what is being displayed. Example 6 shows the HELP SCREEN at the item level. The text for these screens was developed by public service librarians and is upgraded as necessary when enhancements are made to the system.

This idea of a progression of screens is common to all types of searches. The more specific the search, however, the more quickly the user can achieve the desired result.

As shown by the examples for the AUTHOR MENU and INTERMEDIATE AUTHOR MENU SCREENS (Examples 2 and 3), there is a browsing capability built into the system. The specifications of the access group required that this capability be available for call number searches, as well as for the usual author, title, and subject searches. If an online system is to replace a card catalog, the catalogers need to be able to examine a range within a specific class number in order to establish a cutter number. Entering the class number will produce a CALL NUMBER MENU SCREEN (Example 7). In this example, the search included the letter of the cutter. From this, the cataloger can work out the remainder of the number. This capability also allows the patron to browse in a classed catalog.

A look at a few other examples will illustrate something of the nature of serial records and will demonstrate the difference between what the patron sees and what tech services personnel see.

A patron, when searching for a serial, usually wants to know what the library owns. In our situation, the patron frequently has the call number for the serial and goes directly into a holdings search, entering H/call number. Because of title changes and varying formats, one serial call number is likely to have several bibliographic records attached, resulting in a CALL NUMBER MENU SCREEN (Example 8). The example shows hard copy, fiche, and film records for this particular title, plus the dates of publication. Information on formats and publication dates is derived from the fixed fields of the MARC record.

Entering the line number, in this case for the hard copy version of the title, takes the user to the HOLDINGS SCREEN (Example 9). Here we have an accounting of the inventory, plus some information that a span of volumes is located at a mysterious place called Cheds. Cheds, a former department store owned by the Cheds family, is our off-site storage facility, located about five miles away in the Greater Blacksburg-Christiansburg Metropolitan Area. Serials stored at Cheds (about 250,000 volumes) may circulate for seven days.

We also use the holdings screen to indicate which serial volumes have been sent to the bindery and when they will be back, and to tell the users what parts of a title are being held in tech services while we search for or order missing issues. None of this information was available to the public prior to our bringing up the system.

If the patron needs a volume from Cheds and wants to know of its availability, he or she enters "C" (as prompted at the bottom of the holdings screen) and receives an ITEM MENU SCREEN (Example 10) indicating the status of all volumes that have been barcoded and have acquired circulation records. From the menu, the patron could access an item screen, similar to that shown in Example 4. If a cataloger accessed the item screen at this point, the format would be slightly different. Example 11 shows the "cataloger's item screen." If you compare the two screens (Examples 11 and 4), you'll see that the cataloger's version has <u>all</u> the data elements numbered to allow for easy modification. The patrons' display is basically a reformatted version of the cataloger's screen.

The patron might want to see the bibliographic record for this title. Entering "CA" results in the display of a reformatted MARC record, which we call a CARD SCREEN (Example 12). This is the patron's version of the card in the card catalog.

A final screen available to the patron is the STATUS SCREEN (Example 13). This screen displays lost and missing information and is also used to report monographic volumes sent to the bindery (most monographic records do not have holdings screens attached).

All the screens relating to a single MARC record can be accessed using the traverse commands which appear at the bottom of the displays. Some of the HELP SCREENS give additional commands. The examples I've discussed are those relating to the system as an online catalog - the circulation mode allows the same easy movement. The user never has to return to the original menu unless a different bibliographic record needs to be accessed.

To our gratification, 38% found their searches very satisfactory, 46% ranked them as somewhat satisfactory. We have to zero in on the almost 10% who considered the result very unsatisfactory.

When asked how various searches in VTLS compared with searches in the card catalog, the answer was - overwhelmingly - "easier" for monographic titles, personal authors, and call numbers. Less easy were searches for journal titles, corporate authors, and subjects. Indeed, one of the greatest complaints regarding searching was finding the proper subject terms. Our library uses LC subject headings, and the system requires knowledge of the first word in order to make a hit. The archaic and arcane nature of LC subject headings, particularly those inverted headings in areas of science and technology, have hindered this approach.

When asked how they learned to use the system, the majority (46%) indicated they'd used the printed instructions next to the terminals. About one-fifth of the users taught themselves, and 16% used the HELP screens.

Three-quarters of the respondents found the system better and less clumsy than the card catalog, and over half found the HELP facility actually to be helpful.

Because Virginia Tech is primarily a technological/scientific institution, it is not surprising that 54% of the respondents use computer systems - other than the library's - on a daily or weekly basis. Bringing this sophistication to the library and to VTLS, the users supplied us with another unsurprising statistic: their first choice for improvement (45%) was that the library get more terminals. The second choice, indicated by 27%, was that the hundreds of terminals elsewhere on campus be able to access the library's database. Insofar as the data itself was concerned, there was an overwhelming demand for word searching from titles and subjects.

Using these statistics, coupled with some open-ended questions, Ulmschneider suggested and/or concluded the following:

1. Users have little trouble using the command language, but have a bit more (though not much) difficulty learning it.
2. The system provides insufficient coverage of the collection.
3. Subject searching limited to LC subject headings is confining and too dependent on the "big red books."
4. The library needs many more terminals.
5. Searching very short (one- or two-word) titles is difficult because the key is based on the first three words. Partial knowledge (i.e., less than three words) of the title will produce unsatisfactory search results.
6. The lack of cross-references is frustrating.

Future Plans

The Virginia Tech library will close its card catalog within the next two to three years. By that time, we must have a completely viable alternative

in the form of an online catalog. We are fairly certain that the online catalog will be acceptable to our users, but improvements must be made in

1. the quality and quantity of the data
2. the searching capabilities, including cross-referencing
3. the availability of terminals

Taking these points in order:

1. We hope to have an acceptable percentage of the library's holdings entered in full MARC bibliographic form by 1985. Within the library the concept of "acceptable percentage" varies. Serials pose a special problem but we consider 100% full MARC records for current subscriptions and standing orders to be acceptable. We must always keep in mind that subject searching is impossible without full records.

2. Searching problems can be broken into three areas: improved title searching, word searching, and cross-referencing.

   a. When the access group established the title search key, they were under the spell of OCLC. We all know the difficulty of searching very short titles on OCLC. Our plan is to change the title search key to something similar to the author/subject keys; i.e., the first word will produce a menu for selection. This will probably come about in 1984.

   b. Word searching of subjects and titles is a feature required by our sales contract with at least one special library. The contract calls for word searching to be in place by August 1983.

   c. Cross-referencing implies an authority system. We have the capability of making global authority changes, but we have no authority structure beyond this provisional measure. Specifications, including screen displays, have been written, and an authority system, based on MARC authority records, should be available during 1983.

3. Terminals

   It is easy to talk about online catalogs, and it's not hard to purchase software, install a few terminals, and get the project underway. A problem arises when you inform the funding agency that you need fifty terminals in the next fiscal year, plus proper hookups and various other pieces of equipment, including printers. We shop for inexpensive, sturdy, "simple" terminals for public use - terminals that do not necessarily have all the capabilities of displaying diacritics, delimiters, and the like, but which can provide the user with what is needed. The annual salary of one experienced card filer will now buy almost twenty such terminals. The budgeting trade-off and the complications are apparent; each library must handle this problem in its own way, depending on its own fiscal situation.

Access from off-site terminals can be implemented when we have enough ports and enough money to pay for the data switch equipment. This request is in the 1984/85 budget projection.

At the beginning of this presentation, I mentioned that the online catalog had to be at least as good as the card catalog, preferably better. Have we met this requirement? VTLS is not perfect, but it is not bad. It is based on a nationally accepted standard - a MARC record. With some important qualifications, the users seem to like it. Almost thirty other libraries of various kinds have found it acceptable for their needs. As further development of the system progresses, the online aspect should continue to evolve, providing more information to the users.

For your "further development," you might want to read the article cited on the last page of the handout. Questions that I cannot answer here should be sent to Randy Powley at the Tech Center for Library Automation. This information is also on the handout.

Thank you for your attention.

Marilyn Norstedt
Serials Automation Coordinator/
Assistant Department Head
Serials Department
Newman Library
VPI&SU

/ EXAMPLE 1

```
PLEASE ENTER 'HELP' IF YOU NEED ASSISTANCE
help
The system may be approached using the following commands:
1. Author Search        Enter A/ and the author's name (last name first)
                        EXAMPLE:  A/Hemingway, Ernest

2. Title Search         Enter T/ and the title.
                        (omit any leading articles: THE,A,AN,LA,L',DER...)
                        EXAMPLE:  T/Sun also rises

3. Call Number Search   Enter C/ and the call number.
                        EXAMPLE:  C/TL725.3 T7 J6

4. Subject Search       Enter S/ and the subject term(s).
                        EXAMPLE:  S/Metals

5. Holdings Search      Enter H/ and the call number.
                        EXAMPLE:  H/TL725.3 T7 J6
SELECT ANY OF THE ABOVE COMMANDS TO BEGIN.
ENTER LINE # FOR FULL EXPLANATION OF A COMMAND
```

EXAMPLE 2 - AUTHOR MENU SCREEN

```
a/hemingway
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - QUALIFYING AUTHOR
 1.      1 Hemingway, Andrew.
 2.     42 Hemingway, Ernest,  1899-1961.
 3.      1 Hemingway, Gregory H.
 4.      1 Hemingway, John.
 5.      1 Hemingway, John Edwin,  1908-
 6.      1 Hemingway, Leicester.
 7.      1 Hemingway, Mary Moon.
 8.      2 Hemingway, Mary Welsh.
 9.      1 Hemingway, Patricia Drake.
10.      3 Hemingway, Samuel Burdett,  1883-1958.
11.      1 Hemingway, Thomas Keith.

PLEASE ENTER NEW COMMAND OR LINE # OF SELECTION
```

EXAMPLE 3 - INTERMEDIATE AUTHOR MENU SCREEN

```
10
- - - - - - - - - - - - - - - - - - - - - - - - - - PUBLICATIONS BY SELECTED AUTHO
    Author:        Hemingway, Samuel Burdett, 1883-1958.

 1. Title ------- ENGLISH NATIVITY PLAYS
    Main author - HEMINGWAY SAMUEL BURDETT 1883-1958
    Pub. data --- NEW YORK RUSSELL RUSSELL 1964

 2. Title ------- NEW VARIORUM EDITION OF SHAKESPEARE EDITED BY HORACE
                  HOWARD FURNESS
    Main author - SHAKESPEARE WILLIAM 1564-1616
    Pub. data --- PHILADELPHIA LIPPINCOTT 1871-19

 3. Title ------- SECOND PART OF KING HENRY THE FOURTH ED BY SAMUEL
                  B HEMINGWAY
    Main author - SHAKESPEARE WILLIAM 1564-1616
    Pub. data --- NEW HAVEN YALE UNIVERSITY PRESS ETC ETC 1921

PLEASE ENTER NEW COMMAND OR LINE # OF SELECTION
```


BEST COPY AVAILABLE

EXAMPLE 4 - ITEM SCREEN, "USER" CLASS

```
3
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - ITEM SCREEN
Call Number - PR2811 A2 H41
Author ------ Shakespeare, William, 1564-1616.
Title ------- The second part of King Henry the Fourth, ed. by Samuel     ...
Item Number - 1000465107
Copy Number - 1                                  ..... HISTORICAL DATA .....
Location ---- Newman                             Entry date into system: 01/01/81
Loan Period - 90                                 Circulation count to date: 1
Status: AVAILABLE
PLEASE ENTER NEW COMMAND OR 'HELP' FOR ASSISTANCE
```

EXAMPLE 5

```
ma
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - MARC SCREEN
 Local lvl: 5       Analyzed: 0 Operator: 00
 OCLC: 001226930    Rec stat: c Entrd: 820307        Used: 820307
 Type: a Bib lvl: m Govt pub: | Lang: eng  Source: u Illus:
 Repr:   Enc lvl: I Conf pub: 0 Ctry: ||| Dat tp: | M/F/B: |||
 Indx: | Mod rec:   Festschr: 0 Cont:
 Desc:   Int lvl:   Dates: 1921,||||
 1. 010    21-013449
 2. 035    0377-76960
 3. 040      c NAM d OCL d VPI
 4. 049    VPII
 5. 050 0  PR2811.A2 b H41
 6. 100 10 Shakespeare, William, d 1564-1616.
 7. 240 01 King Henry IV. Pt. 2. 1921
 8. 245 04 The second part of King Henry the Fourth, c ed. by Samuel
           B. Hemingway.
 9. 260 0  New Haven, b Yale university press; [etc., etc.] c 1921.
10. 300    4 p. l., 160 p., 1 l. c 18 cm.
11. 490 0  The Yale Shakespeare
12. 500    Contains facsimile of "the title-page of the Elizabethan
           club copy of the only early quarto edition."
13. 504    "Suggestions for collateral reading": p. 153.
                                                    ENTER 'NS' FOR MORE
PLEASE ENTER 'C' FOR CIRCULATION INFORMATION
ns
 1. 600 00 Henry b IV, c King of England, d 1367-1413 x Drama.
 2. 700 11 Hemingway, Samuel Burdett, d 1883-1958.
           e ed.
 3. 740  1 King Henry the Fourth.

PLEASE ENTER 'C' FOR CIRCULATION INFORMATION
```

EXAMPLE 6 - HELP SCREEN, ITEM

```
help
You are now on the ITEM screen.  This screen displays bibliographic
and circulation information about a particular physical piece.
From this screen, related screens can be reached as follows:

1.  Entry of 'CA' will display the CARD screen which contains the
    information found on a catalog card.

2.  Entry of 'MA' will display the MARC screen which contains
    bibliographic information useful to catalogers.

3.  Entry of 'H' will display the HOLDINGS screeen which lists the
    volumes the library holds, their locations and status.

4.  Entry of 'C' will display the item menu screen which lists
    all the copies of the title with their circulation status.
PLEASE ENTER 'SHOW' TO REDISPLAY SCREEN OR A COMMAND TO CONTINUE SEARCH
PLEASE ENTER 'PS' TO REDISPLAY PREVIOUS SCREEN
ENTER '/HELP' FOR MORE GENERAL GUIDANCE
```

EXAMPLE 7 - CALL NUMBER MENU

```
c/bf1 p
 1.  BF1 P5
     Psychoanalytic Review.
 2.  BF1 P6                                              1969-9999
     Professional psychology.
 3.  BF1 P62                                             1980-1980
     Film/psychology review.
 4.  BF1 P62                                             1977-1979
     Psychocultural review.
 5.  BF1 P63
     Psychologia.
 6.  BF1 P64
     Psychological Bulletin.
 7.  BF1 P649
     Psychological Index.
 8.  BF1 P65                              MICROFILM      1927-9999
     Psychological abstracts.

                                    ENTER '/S' FOR MORE
```

EXAMPLE 8 - CALL NUMBER MENU

```
h/bf1 J6
 1. BF1 J6                                                    1916-1974
    Journal of experimental psychology.
 2. BF1 J6                                  MICROFICHE        1916-1974
    Journal of experimental psychology.
 3. BF1 J6                                  MICROFILM         1916-1974
    Journal of experimental psychology.

PLEASE ENTER NEW COMMAND OR LINE # OF SELECTION
```

EXAMPLE 9 - HOLDINGS SCREEN

```
1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - HOLDINGS SCREEN

BF1 J6
Journal of experimental psychology.
LOCATION: Newman
HOLDINGS:
    v.3 no.5, v.25 no.6, v.26-32, 33 no.1-2,
    4, v.35-103, Oct.1920-Dec.1974.
    v.3-58.                                              Cheds
PLEASE ENTER NEW COMMAND OR 'C' FOR CIRCULATION INFORMATION
```

EXAMPLE 10 - ITEM MENU SCREEN

```
c
- - - - - - - - - - - - - - - - - - - - - - - - - - MENU OF COPIES AND VOLUMES
Call No: BF1 J6
Title: Journal of experimental psychology.

    LOCATION          STATUS          ITEM-ID     COPY   UNITS
 1. Cheds             Available       1000184813 c.  1   v.28
 2. Cheds             Available       1000273766 c.  1   v.30
 3. Cheds             Available       1000144795 c.  1   v.35
 4. Cheds             Available       1000390005 c.  1   v.38
 5. Cheds             Available       1000491053 c.  1   v.40
 6. Cheds             Available       1000402957 c.  1   v.41
 7. Cheds             Available       1000144760 c.  1   v.43
 8. Cheds             Available       1000138228 c.  1   v.44
 9. Cheds             Available       1000265898 c.  1   v.47
10. Cheds             Available       1000466039 c.  1   v.48
11. Cheds             Available       1000466037 c.  1   v.49
12. Cheds             Available       1000371849 c.  1   v.50
13. Cheds             Available       1000029294 c.  1   v.51
14. Cheds             Available       1000149886 c.  1   v.52
15. Cheds             Available       1000256170 c.  1   v.54
16. Cheds             Available       1000490875 c.  1   v.55
17. Cheds             Available       1000247038 c.  1   v.56
                                                  ENTER 'NS' FOR MORE
PLEASE ENTER NEW COMMAND, LINE # OF SELECTION, OR 'H' FOR HOLDINGS DISPLAY
```

EXAMPLE 11 - ITEM SCREEN, "CATALOGING" CLASS

```
6
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - ITEM SCREEN
Call No: BF1 J6
Author:
Title: Journal of experimental psychology.
  1) Item Number - 1000402957
  2) Copy Number - 1              6) Units ---- v.41
  3) Loan Period - 7              7) Price ----
  4) Circ. Count - 3              8) Location - Newman
  5) Entry Date  - 01/30/81       9) Temp. at - Cheds
Status: AVAILABLE
PLEASE ENTER 'C' FOR MENU OF COPIES AND VOLUMES OR 'H' FOR HOLDINGS DISPLAY
```

EXAMPLE 12 - "CARD" SCREEN

```
cs
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - BIBLIOGRAPHIC SCREEN
. BF1 J6

. Journal of experimental psychology.
. v. 1-103, no. 6; Feb. 1916-Dec. 1974.
. Washington [etc.] American Psychological Association
  [etc.]

. 103 v.  ill.  25 cm.

. ISSN 0022-1015 =
. Journal of experimental psychology
. Frequency:
    Frequency varies
. Suspended 1918-19.
. Issued by the American Psychological Association, 1927-74.
. Superseded by: Journal of experimental psychology. Animal
  behavior processes, ISSN 0097-7403, and: Journal of
                                                  ENTER 'NS' FOR MORE
PLEASE ENTER 'C' FOR CIRCULATION INFORMATION OR 'H' FOR HOLDINGS DISPLAY
ns
  experimental psychology. General, ISSN 0096-3445, and:
  Journal of experimental psychology. Human learning and
  memory, ISSN 0096-1515, and: Journal of experimental
  psychology. Human perception and performance, ISSN
  0096-1523.

. PSYCHOLOGY -- PERIODICALS.
. PSYCHOLOGY, PHYSIOLOGICAL -- PERIODICALS.
. American Psychological Association.


PLEASE ENTER 'C' FOR CIRCULATION INFORMATION OR 'H' FOR HOLDINGS DISPLAY
```

EXAMPLE 13 - "CARD" SCREEN FOLLOWED BY STATUS SCREEN

```
cs
. - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - BIBLIOGRAPHIC SCREEN
. B945 M2984 G46

. Geoghegan, Vincent.

. Reason and eros : the social theory of Herbert Marcuse /
   Vincent Geoghegan.
. London : Pluto Press, 1981.

. 122 p. ; 20 cm.
. (Pluto ideas in progress : Marxism and radical social thought)

. Includes index.
. Bibliography: p. 113-119.

. MARCUSE, HERBERT, 1898-1979.

PLEASE ENTER 'S' TO DISPLAY ITEMS WITH SPECIAL STATUS
s
     ITEM ID  COPY LOCATION   STATUS            DATE    REP UNITS
 1.             1  Newman     AT BINDERY     02/07/83  00
PLEASE ENTER 'S' TO DISPLAY ITEMS WITH SPECIAL STATUS
```

Further information:

T. Uluakar, A. Pierce, and V. Chachra, "Design Considerations for an Integrated Library System." Journal of Library Automation, vol. 14, no. 2 (June 1981).

Dr. R. Randall Powley
Center for Library Automation
Newman Library
Virginia Polytechnic Institute and State University
Blacksburg, Virginia 24061